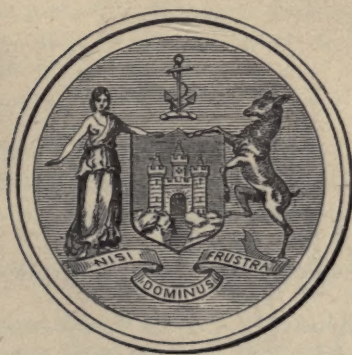


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THE
EDINBURGH
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Part First

ORIGINAL COMMUNICATIONS.

ARTICLE I.—*On the Causes and Nature of the Vascular Kind of Bronchocele, and of the Pulsations and Palpitations termed Anæmic.* By THOMAS LAYCOCK, M.D., etc., etc., Professor of the Practice of Medicine and of Clinical Medicine, and Lecturer on Medical Psychology and Mental Diseases, in the University of Edinburgh.

(Read before the Medico-Chirurgical Society of Edinburgh, 3d June 1863.)

In a former communication to the Society (read 7th January), I examined the pathology of that kind of protrusion of the eyeballs and staring eye known as *anæmic exophthalmos*, and which is sometimes associated with bronchocele and palpitations. I then stated the facts and arguments which were opposed to the theory of its anæmic origin, adding at the same time those in favour of the conclusion that the affection is essentially a cerebro-spinal neurosis, and examining all its varieties from this point of view. The questions in physiology, pathology, and practice thus raised, and the collateral conclusions to which my inquiries have led, are so fundamentally important, and the interest expressed by members of the Society in the subject was so great, that I have occupied some of my leisure moments with a further exposition of my views. In the present paper, I follow the arrangement of the kinds of exophthalmos I formerly adopted; but, starting from the doctrines set forth, I propose to point out more particularly the nature and causes of the enlargement of the thyroid gland, and of the vascular thrills, the pulsations, and the violent palpitations, which constitute so striking a portion of the symptoms. I classed the cases of exophthalmos under a new arrangement, as they are, 1. Neuralgic and hysterical; 2. Paroxysmal; 3. Orbital and facial; 4. Cardiac

and cephalic; 5. Thyroidal and cervical; 6. Complicated with uterine diseases, hæmorrhages, rheumatic affections, and degenerations of the cardiac and arterial tissues, with their consequences—dropsies and Bright's disease. I traced the peculiar affection of the eyes to a morbid action of the muscles of both the eyelids and eyeballs, such that the lids were held wide open and the balls protruded; and I pointed out that there was a correlative affection in the drooping lids and retracted eyeballs observed in various diseases of the nervous system. I further showed that the results of recent experimental researches enabled us to trace two kinds of this nervous exophthalmos to two sources of disordered innervation, —one of these local, and dependent on morbid states of the Gasserian ganglion or its cerebral centre; the other more general, and a motor neurosis of the “oculo-spinal” or “cilio-spinal” region of the spinal cord, being that portion which extends from the first cervical to the second dorsal vertebra. I showed further that this spinal kind of exophthalmos was one of the signs of horror, terror, and pain, and, as a symptom, accompanied various cerebral neuroses, as mania and melancholia, mania with epilepsy, and insanity with general paralysis. Two classes of dorsal spinal nerves were shown to be involved in the affection, in accordance with the experiments of Claude Bernard, but both cutaneous, and both belonging to the sympathetic system, viz., the motor nerves of the bloodvessels, on the one hand, and of the cutaneous muscular tissues to which the eyelids and muscles of the eyeballs belong, on the other. I also showed that, looking thus upon the exophthalmos as a spinal neurosis, we could comprehend how it would be associated with other spinal neuroses, by extension of the functional disorder of the cord to contiguous spinal centres, sensory and motor; and that, in short, various hysterical affections associated with it could be thus explained.¹

I shall now proceed to show that the palpitations and pulsations, with the accompanying nervous affections, and the vascular bronchocele, are equally due to disturbance of function of the same “oculo-spinal” region, and of the more extended cerebro-spinal centre of which it forms a part. But I shall also go a step further, and endeavour to indicate how the increased heat and vascular activity which result constitute most important sources of morbid action.

I. *As to the Anatomy of the Bronchocele.*—The affection of the thyroid gland is twofold,—there is enlargement of the gland, and there are purring thrills and greatly increased size and activity of the thyroidal arteries. These two things are not necessarily associated; but since the vascular disturbance commonly coincides with a like state of the vessels of the head and neck, and with greatly increased cardiac action, it may be separated from the enlargement, in so far as the latter is not obviously due to vascular distention, whether paroxysmal or continuous. In addition to the

¹ Ed. Med. Journal, vol. viii. p. 692, Feb. 1863.

vascular and cardiac symptoms, there are, however, others of importance observed to be associated with them and the enlargement of the thyroid, which are either laryngeal or pulmonary, or both, and which indicate an affection of the vagus system. I formerly pointed out cases of paroxysmal exophthalmos, accompanied with sudden enlargement of the thyroid body and suffocative difficulty of breathing, which belong to this class.¹ Hence the necessity of examining the nerves of the thyroid gland in relation to the anatomy of the vagus and of the cardiac motor centre.

Obviously, the nervous system of the thyroid body must be in relation to its functions, and these in relation to its structure. Now, it belongs to the class of ductless glands; and being made up of two lateral halves, as distinct from each other probably as the kidneys or suprarenal capsules, and only integrated because of their close contiguity to the median line, it is symmetrical, so that the more proper term would be thyroid glands. The fundamental structure, or the element essential to function, consists in clusters of closed vesicles, which contain an albuminous or gelatinous fluid. These clusters are contained in the two lobes or glands symmetrically placed, with a mesian column connecting them, and which divide and subdivide like those of a conglomerate gland. A thin fibrous capsule, continuous with the sheath of the cervical glands, encloses the whole, and each lobe is separated from the others by fibrous septa, which are prolongations of the general capsule. The arteries are in symmetrical pairs, and are inferior and superior. The inferior arise from the subclavian, at a point just opposite to the origin of the vertebrals, which, it must be remembered, supply both the spinal cord and the cerebellum, and posterior lobes of the hemispheres; the superior arise higher up from the external carotid, very near its bifurcation with the internal carotid, which supplies with blood the anterior and middle cerebral lobes. The capillaries form a continuous network, at least throughout each half of the gland. The nerves, like the arteries, are symmetrical, and are supplied from the recurrent and external laryngeal nerves, both being branches of the vagus; but it is most important to observe also that a plexus, derived from the middle cervical ganglion of the sympathetic, proceeds along the *inferior* thyroid arteries, or those derived from the subclavian. The theories as to the functions of the thyroid glands have all, without exception, omitted any reference to its sources of innervation. Dr Parry believed it served as a diverticulum for the blood when the brain is supplied with too much or too forcibly; Mr Simon entertains a like opinion, which he thinks is established by the peculiar relation of the thyroïdal arteries, at their point of origin, to the encephalic arteries. And, certainly, their size also favours the hypothesis, for their united capacity is said to be equal to that of the basilar arteries. There is no proof, however, that the mechanical distention of the gland,

¹ Ed. Med. Journal, loc. cit., p. 685.

which at least such a theory implies, ever takes place, and which ought to occur very frequently, if not constantly, under the conditions of the hypothesis. I do not, however, think that a theory founded on the innervation only would be more satisfactory. The thyroid is part of a system of tissues to which the thymus and suprarenal capsules belong, and all which have important developmental if not functional relations with the genetic glands. So that a satisfactory theory should include the relations of the thymus, the thyroid, and the capsules to the ovaria and testes, and of each to the nerve-centres. All I would indicate here is, that such *are* the general relations of the thyroid. Since, however, as to its special nerve-supply, it receives branches from both the vagus and sympathetic, it is in the same group, as to its nerve-centres, with the heart, lungs, and stomach. And since, further, the cervical sympathetic system, with which it is connected, regulates the cerebral and cephalic circulation generally, it participates in the defects of nutrition due to lesions of that system. This is its relation to cretinism. Disease of the gland, as goitre, is, I think, neither a cause nor an effect of that imperfect cerebro-spinal development which is the essence of cretinism, but both seem to be due to a common cause acting upon the cervical sympathetic system, and so deranging the blood-supply in the first instance, and then the proper nutrient activity of the tissues themselves. That the ovaria (and perhaps the testes also) participate in this degeneration, may fairly be inferred from a fact of much practical importance, —namely, that if a woman has a goitre, in countries where cretinism is endemic, and it constantly enlarges, each successive child she bears is more and more cretinous. My friend Dr Morel, of St Yon, Rouen, has delineated a whole family of six children, in illustration of this fact, in his valuable work on the degenerations of mankind.¹ A case of a woman with bronchocele, who was mother of several children, apparently of weak intellect, is mentioned incidentally by Dr Parry.² A woman, long under my observation with a huge bronchocele, weak in intellect and amaurotic, was the mother of several imbecile and idiotic children. From a consideration of these and other facts, I am inclined to infer that true goitre in a woman, when associated with other signs of degeneration, is indicative of a tendency to such imperfect ovulation or formation of germ-cells that they develop imperfectly, although the ovaria be not diseased in the strict sense of the term, and menstruation and other uterine functions be regular. I say true goitre, for I do not think simple enlargements of the thyroid, for which bronchocele is the more appropriate term, indicate any such tendency.

I shall not examine the questions, how far anæmia is a cause of diseases of the thyroid, or how far they are due to endemic, strumous, and cachectic causes; it is obvious from the considerations advanced

¹ Family of Marie and Joseph X.: *Traité des Dégénérescences l'Espèce Humaine*, plates 4 and 5 of Atlas.

² *Med. Obs. and Inquiries*, p. 125.

that the whole inquiry is one of peculiar difficulty, as indeed has been already amply shown by experience. We can, however, usefully differentiate the bronchoceles anatomically,—that is, according to the tissues of the gland affected, and so restrict our inquiry to one or two kinds. 1. The gland seems to enlarge slightly and diminish in women functionally, very much in the same way as the mammary gland. This is a functional enlargement hardly to be called bronchocele. 2. The bloodvessels and the capillary plexus are excessively developed, or dilated, or have undergone atheromatous or other degeneration, ending in rupture, and allowing of hæmorrhage into the parenchyma. 3. Then there are bronchoceles in which the different structures of the gland are involved. (a) As fibrinous hypertrophy from “exudation,” or plasma-formation. (b) As cystic formations, with melicerous, or fatty, or albuminous, or gelatinous products, evidently involving the structure proper, and termed “spurious colloid.” (c) Fibroid degeneration, or fibrinous exudation, ending in calcification and ossification. The fibrinous capsule and septa seem to be the seat of these changes. Bronchoceles of this kind, although very small, are apt to excite important changes in vocalisation, respiration, and spinal function, from their morbid influence on the branches of the vagus.¹ (d) There may be also waxy degeneration, as I observed in the case of a boy under my care in the Royal Infirmary, who had the right lobe enlarged, and who died of leukæmia, with waxy spleen, liver, and kidneys. It is remarkable that, although bronchocele has been so intimately associated with strumous diseases, both as to causes and symptoms, no scrofulous or tubercular degeneration of the gland seems to have been observed. The nearest approach to scrofulosis, described by anatomists, is observed in the cystic kind of bronchocele, in which the cholesterin and lime-salts, sometimes found within the cysts, seem to constitute the analogue of the “cretified” yellow tubercle.

Taking this anatomical arrangement of bronchoceles as a guide, we can evidently exclude from our inquiries into the etiology all but the vascular kind under consideration, and, consequently, all the causes of bronchoceles, whether endemic, cachectic, or diathetic, which consist in degenerations of the proper structure of the gland. In some cases of exophthalmic bronchocele the increased vascular activity is so great as to give the impression, when handled, of distended erectile tissue; but in others of long standing there is degeneration of the vessels and its consequences. When, however, their structural changes are found consecutively to excessive vascular action, as in the dissection recorded by Neumann,² they must be considered

¹ A case of this kind has been recently published. The removal of an osseous nodule from the right thyroid of a young woman, aged twenty-one, cured her of both aphonia and dysphagia, and a spasmodic affection of the arm.—*Brit. Med. Journal*, 29th Nov. 1862.

² *Deutsche Klinik*, 1853, p. 271, quoted by Withusen, *Dublin Med. Press*, 13th July 1859, p. 19.

as the consequences rather than the essentials of the disorder, and occurring under such constitutional conditions as are required for these constitutional degenerations. In the case of Neumann there were observed disease of the aortic valves, with hypertrophy and dilatation; extensive atheromatous change in the aorta and its branches, in the arteries of the brain, and in the ophthalmic and the ciliary arteries; and here and there aneurismal dilatation of the basilar arteries. Such also was the condition of the vessels of the enlarged thyroid. The whole arterial system of the gland was excessively developed; the *inferior* thyroid artery much dilated, in many places aneurismatically, and its coats hard and brittle. The texture of the gland itself was fibrous (fibroid generation), interspersed with small sanguineous extravasations. Of the seven post-mortem examinations quoted by Withusen (of which this is one), all concur in the general character and seat of the structural changes which constitute this kind of bronchocele. They are precisely such as might be expected to result from long-continued hyperæmia of the tissues and vascular tunics, when constitutional causes of degeneration were superadded. Looked at from this point of view, indeed, these cases throw considerable light upon the first stages of atheromatous and other degenerations of the arteries in general.

We may fairly conclude, therefore, that the enlargement of the thyroid in exophthalmic cases is in truth primarily due to a neurosis of the bloodvessels of the organ, like that of the other vessels of the thoracic and cervical region I formerly discussed; and that the dilatations, thrills, and aneurismal murmurs are in all respects analogous to those of the aorta and carotids. They are the result of local changes in the motor functions of the arterial walls. And when we observe that these thyroidal vascular affections are developed and decline in like manner as the others; and even when there is no exophthalmos and little cardiac disturbance, are still associated with similar head symptoms and arise from similar causes, we may, I think, go a step further and infer that this vascular bronchocele is not only a neurosis, but is of spinal origin. In connexion with these conclusions, I would, however, remark that in future observations of the disease it will be of importance to discriminate those cases in which the vagus system is chiefly implicated, from those in which the vaso-motor is predominantly affected. We have much to learn of both; but the fact that those arteries which receive a special vaso-motor supply were chiefly affected in Neumann's case, viz., the inferior pair, is very significant of a general law of vaso-motor innervation yet to be elucidated by clinical and pathological research.

II. *The Connexion of the Thyroid with the Cervico-dorsal Region.*—I shall now inquire how far the ascertained causes of nervous exophthalmos are also causes of the associated vascular neurosis of the thyroid glands. And, first, as to the emotional causes. The connexion of the "oculo-spinal region," considered as a portion of the

cerebro-spinal centres which subserve to emotions, with the production of exophthalmos, was not difficult to trace, because the muscles of the eye and eyelids are obviously under the direct influence of certain emotions. It is not so with the thyroidal vessels. No physiologist, I think, has shown any similar connexion between emotional states and the thyroid gland, although there may, and probably is, some such connexion. In my last paper I mentioned a case in which a bronchocele of this kind was probably due to anxiety, and Dr Begbie incidentally makes an interesting observation which proves that its size may be suddenly augmented by horror (or terror) and grief.¹

These emotional changes may, however, be fairly attributed to that increased action of the heart which emotions cause; for even by those who view the cardiac affection as a neurosis, beginning with Drs Graves and Stokes, the general vascular activity of the thyroid is believed to be simply a consecutive phenomenon due to the increased action of the heart. But, in truth, there is no very solid ground for this opinion as to what are really mere mechanical results of cardiac action, while it is open to the same objections as the diverticulum theory of the functions of the organ. If violent palpitations, whether organic, nervous, or anæmic, will induce vascular turgescence of the thyroid gland, it ought to be met with in practice much more frequently in connexion with such cases than it is, for they are very common. But this is by no means of common occurrence. I have wholly failed in detecting the slightest enlargement in numerous cases in which palpitation and hæmic murmurs were most striking. On the other hand, this vascular bronchocele will occur with comparatively little disturbance of the heart's action. The theory I suggest refers both classes of disorders of the circulation to a common cause, namely, disturbance of the vaso-motor centres of the cervico-dorsal region, induced by what may be strictly designated "sympathetic" influence.

III. *The Influence of the Reproductive Organs on the Thyroid through the Cervico-dorsal Region.*—And this brings me to the consideration of this common cause. There is one class of facts which points to both a group of vaso-motor centres in the "oculo-spinal" region as the seat of the neurosis, and to a common source of morbid excitation of that spinal centre generally. The connexion of diseases of the thyroid glands with the functional activity of the reproductive organs in women has long been observed, and really affords an important clue to the etiology of this neuro-vascular kind of bronchocele. In stating this, I willingly concur in the opinion expressed by Hasse, that the

¹ "I have under my care at this time a lady, aged 63, who in early life was subject to leucorrhœa. She married when a girl of 15, having then a small, it may be a graceful goitre. She became the mother of a numerous family, and at each of her confinements could remark the augmentation of the thyroid gland. She remarked it more especially on the occasion of a most painful and tragical event in her family, when, in the course of one night, she assures me it nearly doubled in size."—*Contributions to Practical Medicine: Anæmia and its Consequences*, p. 133.

attempts to connect the diseases of the thyroid gland with those of the genital organs have led to no result, although I can hardly endorse Dr Begbie's opinion, that the attempts to connect them with *excitement* of the generative system have entirely failed.¹ There is a remarkable etiological difference between diseases and excitement of the genital organs. Ovarian disease, it is well known, rarely, but ovarian excitement frequently, leads to distant or sympathetic disorders. And even as to the uterine functions this is the rule: ovarian *irritation* will excite menorrhagia, yet this is a rare result of ovarian *disease*. If it can be shown that the female reproductive organs influence physiologically and pathologically the thyroid body through the nervous system, as they influence other organs—the mammæ for example,—and if the channel by which this influence is exercised can be shown to be the cervical, or “oculo-spinal” region, all necessary proof is adduced.

It is not clearly established how far slight enlargement of the thyroid in women as compared with men is a natural state; but, excess in size, as a morbid state, is predominantly seen in them. Of 551 recorded cases of bronchocele treated in this country, in which the sex was mentioned, I find only 26, or less than five per cent., were males,—say 4·7 per cent. Dr Mitchell, Assistant-Commissioner in Lunacy for Scotland, who has investigated the spread of goitre in Scotland, and reports to the effect, that in Nithsdale, its chief focus, from 80 to 90 per cent. of those affected are women.² Males, it is true, are very commonly affected with goitre where cretinism is also endemic; but goitre in males must be considered as an approximation to the feminine constitution, and should be classed with unnatural development of the male mammæ.³ My experience, indeed, has led me to the conclusion that there would be found a larger proportion of cases of mammary enlargement in males, to bronchocele in females, than five per cent., if all enlargements were observed. Bronchocele is therefore a specially feminine affection. That it is specially influenced in them by the state of the ovaria is most certain. It has never come under my notice in impubescent girls or female children except as a congenital disease. When it occurs in male cretins, it is said to be very commonly congenital; but it is rarely, if ever, seen in cretins of either sex (the children of goitrous parents or of cretins) in whom the sexual organs are undeveloped. Increased size of bronchoceles during menstruation and pregnancy is matter of the most common observation.⁴ In two cases lately recorded, an enlargement from fibrinous exudation went on so rapidly during pregnancy as to cause death by suffocation.⁵ There

¹ Op. cit., p. 131.

² British and For. Med.-Chir. Rev., vol. xxix. p. 504.

³ See a lately published portrait of a mammary imbecile under my care in the Royal Infirmary, for jaundice, in Med. Times and Gazette for March 1862.

⁴ See my “Treatise on the Nervous Diseases of Women,” p. 35, for various facts showing the connexion between bronchocele and ovarian function.

⁵ M. Gillet in l'Union Med., Sept. 1860; and Brit. and For. Med. Rev., January 1861.

is no proof whatever that it is *disease* of the ovaria which causes these changes in the thyroid; they are of the same class of changes which occur in other structures influenced by the reproductive glands, and are as physiological, or, more correctly, as dynamical, as the changes induced in the mammæ by ovarian action during menstruation and pregnancy.

I believe no anatomist has been able to trace the anatomical connexion between the nerves of the ovaria and the nerve-centres which are influenced by them, whether in health or disease; but I apprehend none doubts that there is such connexion between these organs and the nerve-centres in both the encephalon and spinal cord. The whole mental character is so modified in lower animals by periodic development and atrophy of the genital glands, and by operative removal of them in spaying and castration; and various hysterical monomanias in young women are so clearly dependent upon ovarian sympathies, that there can be no question as to the influence the ovaria exercise upon the functional activity of the cerebral nerve-centres, and this chiefly, it would appear, by exciting the activity of the circulation in them through the vaso-motor system. The same remarks apply to the cutaneous tissues of the head and neck, and to the viscera supplied from the vagus system.¹ I believe for some time to come microscopic research will avail little if it ever can serve much for the elucidation of this central sympathetic anatomy, and we must rely, therefore, upon observation and experimental research. I have generalized the known facts in a work lately published, and differentiated special sympathetic centres in the lumbo-sacral region.²

IV. *Influence of the Reproductive Organs on the Eyelids.*—In special reference, however, to the exophthalmos, I may mention some curious clinical facts I have lately observed, which tend to prove that the genito-urinary system exercises a direct influence on the vascular system of the eyelids; and in so far as we can determine the point, probably through the same "oculo-spinal" region through which the subjacent lids and the muscles of the eyeballs are affected in exophthalmos. It is well known that some males, after venereal congress, and many women at each menstrual period, or when suffering from menorrhagia, manifest a dark livid-looking circle round the eyes. This, as I have found on repeated examination, is due to either a melasma, or more commonly to a change in the capillary circulation of the eyelids. To this latter also belongs the œdema of the eyelids of women with uterine affections, and which I have often also seen in men with affections of the genito-urinary system. A sort of circular puffiness of the eyelids, due to slight œdema of both lids, is very common, indeed, in male children with nocturnal incontinence of urine. The theories of these œdemas of the eyelids are very vague, but I believe they are most commonly attributed to merely local or

¹ See this question fully discussed in my "Treatise of the Nervous Diseases of Women," 1840; and "Mind and Brain," vol. ii. p. 231.

² "Mind and Brain," vol. ii. p. 412.

mechanical causes. There is no doubt whatever that purely local causes acting on the capillaries of a part will induce œdema, but that this is not the explanation of these genito-urinary kinds is easily shown. The œdema, if the eyelids be carefully examined, will usually be found to be symmetrical and exactly co-extensive with the *orbicularis palpebrarum* muscle. Then, in a certain class of cases of Bright's disease, there is probably a condition of the cord in the lumbo-sacral region which impairs in like manner the retaining faculty of the capillaries of the tissues in known relation, as to innervation, with that part of the spinal cord. For, according to my experience, if in a case in which there is œdema of the upper and lower eyelids, it is also found that the lumbo-sacral region is œdematous likewise, or even the scrotum or penis only, it will certainly be also found that serum is escaping from the renal capillaries, constituting albuminuria. Much doubt and difficulty have been felt in practice in deciding in what cases of Bright's disease renal stimulants should be administered; in this combination of signs will be found, I think, the best guide, for I have repeatedly ascertained that cantharides, juniper, and the like, may be administered in such cases, not only with safety, but with signal advantage. There are other facts as to local and symmetrical œdemas of the neck and thorax which equally indicate a direct connexion between the reproductive organs and the cervico-dorsal region of the spinal cord; but the whole subject of dropsical effusions and their relations to the vaso-motor system merits special inquiry. I shall only state here that careful clinical observation has satisfied me that œdema and anasarca are much more certainly significant of defect in the activity of the vaso-motor system than in the constitution of the blood.

V. *The Palpitations*.—Having thus traced the affections of the eyelids and eyeball, and of the vascular system of the thyroid to a neurosis of a particular region of the cerebro-spinal cord, it remains to examine the etiology of the violent palpitations which accompany them. It is not easy to separate this inquiry from that into the etiology of the vascular thrills and the increased vascular activity generally, for the heart and bloodvessels constitute one great system, with doubtless their proper guiding and regulating nerve-centres. We may, however, separate the heart as a motor organ from its own coronary arteries and capillaries, from the capillary system in general and from the arterial trunks which arise from it, just as we separate the motor system of the eyes and eyelids from the motor system of their vessels. Now, as to morbid movements of the heart, I have already shown that, more than twenty-three years ago, I traced the class of nervous and hysterical palpitations to a morbid activity of the dorsal portion of the spinal cord;¹ and I believe there never has been serious question as to the channel along which mental changes of an emotional kind influence the heart and capillaries. The most recent of the numer-

¹ A Treatise on the Nervous Diseases of Women. London, 1840, p. 270.

ous experimental researches which have been instituted to determine the sources of the motor force of the heart are those of Professor Von Bezold of Jena, who thinks he has discovered a special motor centre for the heart, situated in the medulla oblongata, the motor fibres of which leave the cord between the seventh cervical and the fifth dorsal vertebræ, pass through the inferior cervical and superior dorsal ganglia of the sympathetic, and enter the thorax at the middle and lower cardiac nerves. It is in reflex relation with sensory cerebro-spinal fibres. Von Bezold's researches further tend to prove, that from this centre three-fourths of the whole power of the heart are derived, and that by abnormal irritation of it the energy of the cardiac contractions may be increased to six times the force which irritation of the cardiac ganglia induces. It also appears that this is a cerebral and emotional centre, for he found that the heart's action was increased whenever the animal he was experimenting on attempted considerable movement, although the attempts were not successful in consequence of paralysis caused by woorara. And to this centre he refers the augmentation of the heart's action consecutive to sudden emotion, as terror, fright,¹ etc. Although these experimental researches need to be confirmed before being fully accepted, they are so much in accordance with the deductions to be drawn from the facts of medical psychology, physiology, and pathology, that the general conclusion may be safely admitted, viz., that there *is* a cerebro-spinal motor centre for the heart, and that its nerves are connected with the sympathetic ganglia in the cervico-dorsal region. The connexion of the heart with the "oculo-spinal region" may, therefore, be assumed as proved, and the violent palpitations which accompany the exophthalmos and the vascular bronchocele are seen to be part of the same cerebro-spinal neurosis.

VI. *The Thrills and Pulsations.*—These conclusions do not, however, explain the morbid activity of the arteries and of the capillary circulation as well of the head and neck as of the thyroid gland, and which is seen also in the upper extremities in certain cases; as in the case of Elizabeth Camidge, referred to in my last communication, in whom, from time to time, the fingers and thumb of the right hand presented a mottled livid appearance, and there was an aching pain along the arm, while at other times the left hand became purple, and a deep-red blush extended along the forearm.² In the recent experimental researches of Schiff,³ we have, however, a clue to the explanation of these capillary or vaso-motor phenomena as distinguished from the purely cardiac. These are so much in accordance with numerous clinical facts, that in my systematic course I have constituted the affections of the vaso-motor system a distinct

¹ See Med. Times and Gaz., Oct. 1862, p. 365, and Wiener Med. Wochenschrift, Dec. 20, 1862. Professor Von Bezold is said to be one of the most distinguished pupils of Professor Dubois-Reymond.

² Ed. Med. Journal, Feb. 1863, p. 686.

³ Comptes Rendus, tom. lv. p. 462-64.

group of neuroses in which a distinct series of cerebro-spinal centres are involved, to be termed the central vaso-motor system. Through these centres, I conceive the distribution of the blood is regulated by action on the capillaries in particular organs and tissues, and especially in particular portions of the encephalon, just as particular muscles and groups of muscles are acted on by the motor centres proper. In the spinal cord there appear to be vaso-motor centres of this kind, with their appropriate afferent or sensory nerves. Hence a well-marked group of cutaneous symmetrical neuroses manifested as capillary lesions, with or without neuralgia, and variously characterized by symmetrical melasma, redness, pallor, œdema, lividity (as in the case of Camidge), effusive inflammations (of which herpes zoster is the type), sweats, and nervous or hysterical hæmorrhages. The recent experiments of Schiff, on the special relations of the vaso-motor system, tend to prove that even the upper and lower limbs have each their own proper vaso-motor centres, in and through which the distribution of the blood and the evolution of heat in them are regulated. Whatever may be the conclusion as to particular experiments, the general conclusion that the capillary circulation is influenced through cerebro-spinal vaso-motor centres by vascular and calorific nerves is one of the most certain facts in physiology and pathology.

VII. *Heat the Proximate Cause of Nervous and Anæmic Palpitations, Pulsations, and Thrills.*—Now, although it be admitted as a fact that the vaso-motor nerves and nerve-centres are disordered in these cases of palpitations and pulsations, the mere fact gives us no clue as to how they are produced. The experimental physiologists vary in their opinions; but Claude Bernard, Brown-Séquard, and others, concentrating their attention on the increased heat and vascularity which certainly result from certain lesions of the sympathetic, have endeavoured to explain them by a very simple, but, I suspect, too plausible a series of theories. They say that the injury of the sympathetic causes paralysis of the motor tissue of the arteries, that in consequence of this paralysis the arteries dilate, and then, in consequence of their dilatation, they admit a larger quantity of blood; upon which there follows not only the increased vascularity (which may be admitted), but also the increased production of heat. Now, it is not only doubtful whether this be the true order of events, but doubtful whether the paralysis of the arteries (supposing it to take place) is the sole cause of the other phenomena. In the first place, although it is most certainly established that these results do follow injury of the sympathetic or vaso-motor nerves of a part, yet they occur only on the same side as the nerves operated on; on the opposite side the converse takes place; consequently, if this state be paralysis on one side, it must be the opposite to paralysis on the other. Further, the arteries of the affected side do not, in fact, seem to be paralyzed, if by the term be meant a loss of motor or contractile power in the vascular fibrils, for Claude Bernard found the small arteries situate in the muscles of the shoulder were pulsating

more strongly after removal of the superior thoracic ganglion, and the blood more abundant in the tissues and redder than in health.¹ And when he cut the arteries in the two ears of a rabbit in which he had divided the cervical sympathetic on one side, and produced the ordinary phenomena of increased heat and redness, the blood flowed from the arteries of the injured side in jets double and even triple the size of those of the unaffected side. That this is the condition of the great arteries in a typical case of vascular pulsations and thrills, is, I think, clear from all the phenomena observed. It is thus, in fact, and thus only, that we can explain the pulsations themselves, the vibratory thrills, and the souffles. Further, it is certain that increased heat and increased vascularity do not necessarily go together, as is shown by both observation and experiment. When the Gasserian or trigeminal ganglion is diseased or injured, there is equally increased redness of the eye, but then there is therewith diminished production of heat. And further, while, after lesions of the sympathetic, the nutrition of the tissues goes on as usual with increased vascularity, the opposite result is seen in lesions of the fifth, and defective nutrition takes place. In a dog in which Professor Claude Bernard extirpated the superior cervical ganglion, the side of the head experimented upon remained of a higher temperature than the other for a year and a half, or so long as the animal was kept alive; while if the Gasserian ganglion be extirpated, necrosis of the cornea, and inflammation and bursting of the eyeball, follow in a few days.² And in all these purely nervous palpitations and pulsations there is what is seen in extirpation of the sympathetic ganglion, viz., greatly increased heat of the head, face, and neck, and long-continued cardiac and arterial disturbance, without structural change or defective nutrition. It is only in certain constitutions that rheumatic and gouty affections of structure of the heart and arteries complicate the disease either previously or consecutively. But granting that the increased vascularity and heat is the result of induced paralysis of the *capillaries*, does it follow that the increased force of the *arterial* pulsations is due to the same cause? I think we cannot admit this with our present conclusions as to the results of paralysis of nerves of motor structures, and must look elsewhere for an explanation. Now, I apprehend that these pulsations are really due to the heat which is generated in the arterial tissues themselves, and which would be evolved in increased amount if the vaso-motor nerves of the *vasa-vasorum* are implicated, which it is clear from all the phenomena is what happens. And this view of the cause of the increased arterial action accords with all our experience of the influence of heat on living tissues. We know it is the stimulus to animal and plant activity alike, and that, without it, vital processes can neither be begun nor continue. And we know, too, that

¹ Comptes Rendus, tom. lv. p. 308.

² In a copy of a drawing from Landmann, "*De Morbo Cerebri Oculique Singulare*," handed round the meeting, this result of structural disease of the ganglion was very strikingly shown.

it most especially and certainly excites the activity of the heart and bloodvessels. When applied to the cutaneous surface under ordinary circumstances, we see that increased vascularity is the direct result. Even the heat produced by simple friction will cause it.¹ When heat is applied in excess to the lungs and body generally, the congestive phenomena known as sun-stroke arise. That analogous results must follow in the class of cases under consideration seems a necessary conclusion, for the heat is generated within the very tissues of the contractile vascular walls, and so comes into as direct contact with them as with the cutaneous vessels when it is applied to the surface of the body. Professor Claude Bernard found in his experiments on the cervical sympathetic, that the deeper tissues of the head of the animal experimented on, as, for example, the cerebral substance and membranes, were hotter as well as the cutaneous surface; nay, even the blood itself became hotter after it had circulated through that side of the head. This was proved by placing a thermometer in each jugular vein.² It follows, therefore, from all these various yet harmonized facts, that in those cases in which the increased heat and vascular action is of centric origin and yet local, there is a lesion of the vaso-motor nerves which gives rise to the evolution of heat in the first instance, but that the locally developed pulsations are really due to the heat thus locally developed, which raises the temperature both of the arterial tissues and of the blood circulating through them, and thereby excites them to that increased activity known as throbbing, pulsations, and the like. In local inflammations from injuries, it does not follow, however, that there is vaso-motor paralysis locally, because the heat evolved from the injured tissues may be, and, I think, is the cause of the increased vascularity, and the local pulsations or throbbings, either directly or reflexly.

VIII. *Influence of Heat on the Heart.*—These views are still more interesting when applied to the heart. I am not aware that experimental researches have proved that the local production of heat follows upon lesion of the vaso-motor nerves of the heart, and that, consequently, its tissues are thus rendered hotter than natural; but since the law has been demonstrated in regard to the skin, limbs, and brain, we may fairly infer that the cardiac structures are no exception to the general rule. And it seems certain that the blood is hotter. Now such increased temperature of the heart, or of the blood circulating through it, would sufficiently explain the increased cardiac activity in the class of nervous palpitations, for it is capable of proof that heat is one of the most direct and powerful stimulants to the heart's action. Any one may verify this fact on a frog's heart. When removed from the body of the animal, it palpitates for a while after removal, and then is still; but the palpitation may be re-excited either by placing the organ in warm water, or dropping a drop or two upon it. Further,

¹ I think it is Schiff who explains the increased vascularity which follows on friction by reflex action; this theory of the action of heat does not, however, militate against the notion.

² *Leçons sur la Physiologie et la Pathologie du Système Nerveux*, tom. ii. p. 493.

M. Calliburcès has demonstrated experimentally the like influence of heat upon the frog's heart when undetached from the body, and ascertained that the rapidity of the palpitations increased with increase of temperature. He also found that the application of heat to the frog's feet had the like effect as when applied to the heart, and that the palpitations thus excited were not due to the influence of the nervous system, or of the respiratory movements, or to physical conditions of the vessels. And hence the conclusion, that heat can excite the heart's action locally, and maintain that activity, and thus influence not only the number but the quality of the cardiac contractions.¹ There are on record other facts of a like kind; as, for example, the fact that a sturgeon's heart, hung up to dry in the sun, will beat until it has lost its moisture: but these I will not enumerate. All that I need say here is, that as the heart will beat, independently of the nerves, out of the body, under the stimulus of heat, we may fairly infer that it will beat, under the same stimulus, within the body, when its vaso-motor nerves are in a paralyzed or enfeebled condition, and heat is produced as one of the results of that condition.

IX. *Deduction from Practical Facts.*—Therapeutics also contributes its share of proof. In the particular kind of bronchocele under consideration, cooling means have been successfully applied empirically by various practitioners. The case recorded by Flajani illustrates the difference between theory and practice. He believed the thyroid gland was the seat of the malady, and that an acrid humour deposited there was the cause. "Such being the nature of the disease (I quote from Dr Begbie's translation), the indication for cure must consist in effecting the resolution of the deposited (or stagnant) humour. For this purpose, cold compresses saturated with a solution of sal-ammoniac or vinegar and water were applied, and after the employment of this application for twenty days, there was a very visible diminution of the tumour; it had fallen to less than a third of its former bulk,—the patient, moreover, breathed with greater ease." This solution is one of the old surgical "refrigerants." In another case, ice applied to the tumour was of signal service. If, however, we extend this doctrine of the local production and stimulant action on the heart and vessels of heat to other diseases in which increased cardiac and vascular action and a higher temperature go together, as in the great group of diseases known as fevers and inflammations, we have not only the largest possible proof of its truth, but a strikingly simple explanation of the *modus operandi* of cold affusions, cool air, ice, cold applications, evaporating lotions, and all the varied cooling remedies so long and so beneficially used in febrile and inflammatory affections, and at the same time a guide to the proper use of them.

X. *Relations to Neuroses, Fevers, Inflammations, and Anæmia.*—Nor as to the great questions of general pathology into which morbid heat and vascular activity enter as principal elements is this doctrine

¹ Professor Claude Bernard, in op. cit., tom. ii. p. 395-403.

less applicable; and, perhaps, the most satisfactory and conclusive proof of the truth and value of these views is to be found in these applications of them, for they thus enable us to understand better the relations of a great variety of phenomena of this class, and so reconcile numerous discrepancies and contradictions, and correct many errors. That rapid eremacausis of the tissues, and the consequent production of heat, and therewith the increased vascularity which constitute the essential morbid phenomena, is obviously but an exaggeration of a natural state, common to all hot-blooded animals. If it take place within the cerebro-spinal axis, or in particular portions of that axis, then there result the varieties of *neuroses* which are said to be due to "irritation" and not to "inflammation," and which are predominantly characterized by exaggerations of function; if within the heart and large vessels, nervous pulsations and palpitation. But if the morbid state involve the blood itself, as well as the vaso-motor system, then a very important additional element in causation is introduced; for if, on the one hand, it be certain that the varying states of that system increase or diminish the eremacausis of the tissues and the production of heat, so it is equally certain that the condition of the blood, as the nutrient fluid from whence the materials are drawn which keep up the eremacausis will deeply influence it likewise, and therewith these conditions of the tissues themselves which are structural according to the varying constitution of the blood. And this is what occurs in anæmia, fevers, and inflammations. If a certain kind of blood-defect concur with a local vaso-motor defect, involving chiefly the heart and large vessels, the two states are the factors which constitute conjointly the cause of *anæmic* pulsations, palpitations, and thrills. Here the state of the blood may be considered as the antecedent or predisposing cause. If, however, the two conditions be general and due to specific causes, then arise the phenomena of specific fevers; or, if the general vaso-motor defect be also localized and restricted to an organ or tissue, then arise the phenomena of specific inflammations. In the increased temperature and vascular activity of hæmorrhagic anæmia there is a difference of cause as to the state of the blood and the structural changes that result in inflammation, but an analogous result as to the evolution of heat and its consequences. In the eremacausis and evolution of heat and muscular force observed after death, there is a manifestation of the ebbing life of the tissues alone in persons who have died, more rapidly as to the general system than as to the tissues; or else who had before death that condition of the sympathetic system in virtue of which there is a restriction upon the process of eremacausis, and which death removes. In life there is a continual change in the direction of decomposition, but there is also as continual recomposition; in death, decomposition is not alternated with recomposition, and so ends "life's fitful fever."

On these points I need not, however, dwell, as the practical applications of these principles will be obvious to every practitioner.

ARTICLE II.—*Clinical Cases.* By A. M. EDWARDS, F.R.S.E.*Paralysis of both Lower Extremities — Dislocated Astragalus — Amputation — Recovery.*

R. C., æt. 40, recommended to my care by my friend and pupil Mr Field, consulted me as to whether I could in any way improve his very pitiable condition. He followed the employment of a gate-keeper, and went about upon his knees as his ordinary method of locomotion. He gave the following history:—After having been a sailor for some years, he settled as a slater in Edinburgh; and on September 25, 1857, having to execute repairs on two houses adjoining each other, but separated by a narrow wynd, to save himself the trouble of again ascending a long ladder, he tried to jump from one roof to the other; but, miscalculating his distance, he fell the height of five flats, landing on his feet. He was taken up paralyzed, and lay for three months, unable even to turn in bed. In two years, however, he had so far recovered strength as to be able to turn, and afterwards to move about with crutches and a wooden support under his right leg. In neither leg was there any power below the knee. Power, however, partly returned in the left leg.

On examination of this patient, I found he was healthy in all respects; his legs below the knee alone were in fault. On the right side there was no voluntary power of the muscles, nor any movement save slight flexion of the leg on the thigh; but there was sufficient of that to show that the hamstring muscles were not paralyzed. Both feet were distorted; in the right, the head of the astragalus lay on the dorsum of the scaphoid, and the body of that bone, driven up between the tibia and fibula, had separated them, and given an expanded appearance to the ankle. A somewhat similar state of matters existed in the left foot, but to a less extent; the heel was much elevated, and could not reach the ground when he endeavoured to stand erect. The left leg had evidently sustained far less damage than the right. R. C. had consulted many surgeons, and, from their prescriptions, they evidently had considered the cause of permanent loss of power central.

My opinion was slightly different. The poor man had evidently suffered from concussion of the spine; but I considered that the mechanical injuries the parts below the knee had sustained were quite sufficient to account for many of the symptoms. I advised amputation of the right leg just below the insertion of the hamstring muscles and division of the left tendo Achillis. To these proposals he readily submitted, and I accordingly removed the right leg: the flaps adhered, and the wound healed in a week. I then divided the tendo Achillis of the left side, and treated the case exactly as one of talipes equinus. The heel came down, and

he now can bring the heel of an ordinary boot easily to the ground. Since returning to his situation in Leith he has obtained an artificial leg, and walks about freely with an ordinary walking-stick: the left leg is getting more vigorous daily.

This case is interesting from the dislocation of the astragalus and the paralysis. The latter had not been broken by the concussion on the sole of the foot, as so frequently happens (see Inaugural Thesis, March 1858, by B. Monahan, referred to by Hamilton, p. 477), but was driven up between the bones. Hamilton (p. 697) alludes to this accident: "It has been occasionally driven between the tibia and fibula, tearing away the intermediate ligaments, and generally fracturing one or both bones of the leg." This observation of the American professor is corroborated by Mr Ferguson (p. 354): "The astragalus could not be very distinctly made out, but it seemed as if jammed between the ends of the two long bones; . . . the ligaments which bind these bones together had given way, and permitted the astragalus to slip between. But," he adds, "there was no fracture that could be perceived." Whether the injuries in my patient's foot could have been rectified at the time of the accident, it is hard to say; but it seems very probable that, as so often happens, one very serious lesion occupied all the attention of the surgeon in attendance, while some comparatively slight, but more permanent injury, was not attended to.

The history of the paralysis in this case is very hopeful, showing that the nervous power is restored in time. At first, this patient could not turn in bed, then he was able to do so, then to move about crawling, then on all-fours, then on his knees unsupported, and now he can walk upright with far less awkwardness than one with an artificial leg generally exhibits.

Disease of the Foot—Pirogoff's Operation.

Miss L., æt. 30, from Dalkeith. Has suffered from childhood from a thickened condition of the skin of the right foot. This member is but partially developed. The heel is drawn up, and she walks on the heads of the metatarsal bones. The skin is ulcerated, and resists all curative treatment; latterly the ulcer has assumed the appearance of epithelioma, and has given her considerable distress. Both tibiæ are greatly thickened, and the right leg is shorter than the left by nearly four inches.

I recommended amputation of the right foot, to which she readily consented. At first I intended to perform Syme's ankle-joint operation, but as there was no disease of the tarsal bones, I selected Pirogoff's, being confirmed in my selection by a remark of Mr Syme's, in his lately published volume of Clinical Observations, that Pirogoff's operation leaves too long a stump. This would, under ordinary circumstances, be an objection, but here it was desirable to leave as long a limb as possible, so I gladly pre-

served the posterior portion of the os calcis to add to her shortened tibia. I accordingly removed the foot, after the Russian method, and found some difficulty in turning up the heel-bone, owing to the induration of the tissues. Division of the tendo Achillis, however, allowed me to adapt the sawn surfaces of the tibia and os calcis. Only one vessel bled, and was secured by a needle and wire.

This patient made a rapid recovery, and now walks about with an artificial foot. The amputation decreased the comparative difference in the length of the limbs by two inches. During her convalescence there was little or no discharge, and the union of the two bone surfaces seemed to occur at a very early period. Professor Wagner has informed me, that he believes in many of these cases primary union takes place between the bones. At present the stump is firm, solid, and painless, of a most singular appearance. It has none of the rounded symmetry of a well-made stump after Syme's method, but is quite flat on the sole, forming an abrupt termination to the somewhat elephantine leg. The ease with which Pirogoff's operation is performed, and the firm stump, without the bag of fat and cellular tissue which is left in the other operation, would, it seems to me, be likely to ensure its popularity if more widely adopted. But cases justifying its performance must be very rare in private practice. The great tendency to return of disease in the cancellated structure of the tarsal bones, which is so discouraging and mortifying to both patient and surgeon in Chopart's, Hey's, and other operations on the foot, would also obtain after Pirogoff's osteoplastic method; but in well-selected cases where no actual recurrent disease is present, or when the operation is necessitated by accident, there would be no reason why the safety of the posterior flap should be endangered by separation from the bone. I cannot conceive, however, the necessity for adopting the large internal flap recommended by Szymanowski, except where the integuments on the outer side have been much injured.

Acute Inflammation of the Ankle-Joint and Tarsus—Amputation—Recovery.

Master S., æt. 12, returned from school on the 27th October 1862, complaining of pain in his right foot. He had twisted it in a door-scraper. It rapidly swelled, but presented only the usual symptoms of a sprain. A few days after this, Dr Littlejohn saw the patient, and desired me to take charge of the case, as he anticipated that an operation would eventually be required.

An opening rapidly formed on the inner side of the joint, and evacuated large quantities of pus; but the inflammation had been so intense, and had run its course so rapidly, that no other treatment was available than removing the necrosed tarsal bones. The patient was very feeble, but was not likely to get stronger under existing circumstances; so I removed his foot on the 20th November, a little more than three weeks after the occur-

rence of the sprain. So complete was the necrosis of the tarsus that I had merely to divide the skin and lateral ligaments, when the foot dropped off, as a bystander remarked, "of its own accord," leaving a layer of cartilage in the posterior flap. I turned the former opening to good account for drainage purposes, and the wound healed very rapidly. He was removed to a sofa in one of the sitting-rooms a week after, and was soon able to run about with a stick.

Now, with a very simple addition to his ordinary boot, he walks about freely, and for the last two months has regularly attended school.

The rapidity with which the inflammation in this case ran its course is very instructive. All the mischief was done before the case seemed sufficiently serious for the attendance of a medical man. It is also a good instance of the applicability of Professor Syme's operation,—the operation itself certainly did not occupy a minute, and the hæmorrhage and shock were trifling. The stump is now firm and painless, and the difference in length between the limbs almost imperceptible, except on measurement. I believe the drainage-hole in the posterior flap which Mr Syme now invariably makes is a very valuable addition, and perfects the operation so far as an amputation can be perfect. It was also an instance where the operation can be done with more than ordinary facility,—not that I believe it need ever be very difficult, unless the posterior flap is left of a preposterous length, the tissues much condensed, or the lever of the foot away, as in secondary amputations. The elements of success in this operation seem to me those laid down by the originator himself: a short posterior flap raised from the bone with as little dragging as possible: the arteries left as long as possible, so that the flap may be well nourished. All men accustomed to make what in museum language are called "*vascular feet*," know how numerous the vessels are here, but how dependent they are on the posterior tibial trunk. And a free exit for the pus, which is effected with no detriment to the posterior flap, by a puncture made after the flap is made, or before, according to the whim of the operator.

Pirogoff's operation is far easier of execution, but I believe the opportunities to the civil surgeon for its performance must be few and far between. In this country it has not yet been sufficiently tried.

Secondary Amputation above the Knee,—rapid Absorption of the Flap.

Charles O., æt. 18, five years ago, while working on a railway, was run over by a truck, and had his right leg smashed. It was amputated below the knee, by the late Dr Paul. The stump was conical, terminated in a fine point, and exquisitely tender.

On April 2d, I amputated just above the knee-joint, forming a flap from the tissues at the back of the stump. The arteries were secured by ligatures; the flaps were so ample that I fastened them with straps of adhesive plaster instead of sutures, and had the satis-

faction of finding nearly the whole wound heal by first intention; all the ligatures were away at the end of a fortnight, and he seemed well; but on April 23, complained of pain in his thigh, and on the next day this thigh was covered with an erythematous blush. He was under the care of Dr Braine, who came to me and said that the stump, though healed, was not so round as it was, and there was pain over the end of the bone. On the three following days, these symptoms continued, and the new stump appeared nearly as conical as the previous one had.

On 29th, I made an incision in the line of the femur, separated the tissues from it with my fingers, sawed it through, and strapped up the parts. The wound soon healed, and the patient went to his home.

The tissues from which I made the posterior flap in this case were very much condensed, almost gristly indeed; so as to make the long, thin, French catlin I used, yield, and pass through them with difficulty; but I little anticipated that the well-rounded cushion would disappear in the course of four days. So rapidly did it disappear that the nurse observed it, and came to inform me. This was not retraction, but absorption of a mass of tissue, the bulk of which was the proceeds of inflammation. The irritation of the erysipelas and other disturbing causes had induced its rapid absorption.

I may mention that in this, as in nearly all cases of operation, I saturate the lint which covers the wound in a filtered solution of opium,—3j. of solid opium to 3vij. of water. I believe it greatly lessens the pain.

Cleft Palate.

C. M., æt. 24, was recommended to my care by Dr Alexander Simpson. This patient was a good-looking young woman, with an extremely small mouth. Her soft palate was cleft, and the fissure extended about half an inch into the bones. The lateral halves of the velum were so scanty and irritable, that when touched they receded almost out of sight. She was extremely anxious to have some attempt made to remedy this condition, so, with the assistance of Drs A. Simpson and Black, I proceeded to operate in the usual way. Four stitches were applied, and the edges of the cleft gently drawn together. Before doing so, however, after having pared the margins, I divided the tissues at the back of the velum on each side, in a direction forwards and slightly outwards, so as to cut across the levatores palati muscles, and probably also the fibres of the circumflexus as they diverge towards their terminations. On attempting to tie the wire sutures, I found that, even after the free incisions to which I have alluded, the edges of the cleft remained asunder under as severe traction as it was safe to apply. I therefore introduced the blade of a strong iridectomy-knife between the mucous membrane and the bones of the roof of the mouth, separating the membrane; and, lastly, I made a curved incision on each side along the groove between the alveolar margins and

horizontal palatine and maxillary plates, lifting the mucous membrane from the bones with the blade and handle of the knife. To do this a good deal of force was required, and also care lest the mucous membrane should tear or split. At last the margins of the cleft came together, and the stitches were secured. Before the operation was finished the uvula became turgid, and of a dark blue as if about to slough. When I saw her, three days afterwards, the parts had recovered their healthy appearance: on the eighth day, I removed all the stitches, and found the union firm and complete, except for a very limited portion in the hard palate, which was surrounded by granulations, and will probably become even smaller in time. Having, like most other surgeons, performed this operation frequently, I should not consider an instance of it worthy of publication were it not for the difficulties which presented themselves. The extremely scanty tissues, very irritable fauces, and a mouth æsthetically correct, but surgically very inconvenient for the proper management of instruments, gave me unusual trouble.

According to Mr Ferguson's advice, I do not starve patients after this operation, but allow them what soft food they may select; but they must not *talk*. I have traced the re-opening of two cases to sudden screams. In the one, a young lady, whose palate I had just seen and been much pleased with, on the fourth day after the operation was startled from sleep; she cried out, and was sensible of the recently united wound rending asunder. And a few weeks ago, the fissure of a patient, æt. 14, sent to me by Dr Littlejohn, was apparently so firm that I promised to return on the next day to remove the stitches. Her mother came to me in the morning to say that her daughter had roused her during the night to look at her mouth, as she was aware of having wakened from sleep with a scream, and thought she had felt her palate come asunder; and so it had. The instruments I use are very simple. For paring the edges, a common scalpel; and another scalpel, set in a long, strong handle, with the blade bent at a right angle to the shaft, will do anything else that is required. An iridectomy-knife is very useful for peeling the mucous membrane off the bone, but the scalpel does nearly as well; and a common hæmorrhoid-needle is far more efficient for the introduction of stitches than *portes-aiguilles*, a class of instruments I have always found extremely disappointing.

ARTICLE III.—*A View of the Present State of our Knowledge of the Question of Muscular Irritability.* By H. N. MACLAURIN, M.D., Royal Navy.

TILL within the last few years the great majority of physiologists believed that the doctrine of the irritability of muscle had been finally established. Although the opposite opinion had been main-

tained with considerable ability by Professor Whytt of Edinburgh, in his controversy with Haller, yet the great reputation of the latter, and the absence of sufficiently delicate means of investigation, led most men to look on the Hallerian view as established. Thus the late Professor Alison, in his *Outlines*, states distinctly :—"The final cause of all endowments bestowed on nerves in the living body, in relation to muscles, appears to be, not to make muscles irritable, but to subject their irritability, in different ways, to the dominion of the acts and feelings of the mind."—P. 12. Similar opinions are expressed in the works of Carpenter, Kirkes, Todd and Bowman, and Bennett.

The extraordinary advances which have recently been made in physiological science, particularly in what may be called the *physical* part of nervous physiology, have induced several observers, especially on the Continent, to reopen the question; and the result has undoubtedly been, if not altogether to overturn the Hallerian doctrine, at all events to show that its foundations are by no means so secure as the authors I have already mentioned would have us believe. Among the Continental writers, the principal defenders of the theory of muscular irritability are Bernard, Kölliker, and, though on different grounds, Kühne: on the other hand, it is attacked with great ability by Schelske, Wundt, Eckhard, and Funke. I propose, in the following paper, to give some short account of their observations and arguments. I pretend to nothing beyond the humble office of a reporter of other men's views; and I must, once for all, acknowledge the great assistance I have received from the admirable article on this subject in Funke's *Lehrbuch der Physiologie*, a work which can be safely recommended as one of the best text-books of physiology at present in use.

The question I am about to discuss is this, Are the muscles dependent for their contractility on the nerves supplied to them? or, can muscular contraction be produced, independently of all nervous influence, by an irritant acting after the nerves have been either entirely removed, or utterly paralyzed to their extreme terminations?

It is plain that this question can be completely answered only by physiological experiment; but somewhat confirmatory evidence may be obtained from anatomical investigation of the intimate relations of the tissues themselves. I shall consider the matter, first, in this subsidiary aspect, coming afterwards to the more decisive and physiological view of it.

I. Let us bear in mind clearly what we can expect to establish by anatomical investigation. If we find that in a muscle there are many fibres, to which no nervous fibril is distributed, and which must consequently receive their nervous irritation indirectly through the medium of neighbouring muscular fibres, such a discovery will lend considerable probability to the view that *any* muscular fibre may act independently of nervous irritation. But if, on the other

hand, we find that no such anatomically independent muscular fibres exist; that every muscular fibre possesses at least *one* nerve fibre; then we shall get very strong presumptive evidence on the other side of the question.

It seems now to be pretty well established that there is no muscular fibre without its corresponding nerve fibre; thus Kölliker (Histol., p. 267) after Reichert, states: "The trunk of the nerve supplying the 160-180 fasciculi of the cutaneous thoracic muscle of the frog contains 7-10 fibres, and ultimately, by continual division, forms 290-340 terminal filaments, so that there are more than one for each muscular fasciculus." And Professor Beale (in his paper on the distribution of nerves) says: "That every elementary fibre of striped muscle is abundantly supplied with nerves, and that the fibres of some muscles receive a much larger supply than others."

An exceedingly important statement has been made by Kühne (Archiv f. Anat. u. Physiol., 1859) from his observations on the muscles of the invertebrata. He asserts that, while in the frog he was at no time able to trace the nerve fibril within the sarcolemma, in the beetle he observed the fibril penetrate into the interior of the muscular fibre, and, after a short course, end in rows of peculiar granules, separated by clear interspaces. These granules he regards as true terminal nervous organs. This observation has not yet, so far as I am aware, been so confirmed as to be perfectly established. Meissner and Munk, however, agree in observing the penetration of the nerve within the sarcolemma, while Dr Beale (*loc. cit.*), although he does not admit this penetration, yet states, "that the organs by which nerves are brought into relation with other textures, are the little oval bodies or nuclei which are present in considerable number in the terminal ramifications of all nerves." If Kühne's observation should be extended to other animals, then the anatomical argument in favour of the dependence of muscle on nerve would become perfectly convincing, as the one would be shown to be structurally inseparable from the other. But even if this should not be the case, the established abundance of nervous supply to each muscular fibre affords a strong presumption in favour of their physiological inseparability.

Development, which is but a branch of anatomy, furnishes both sides with an argument. On the one hand, Wagner has shown that the heart of the embryo chicken pulsates regularly before the microscope can detect any nerve fibres in its structure. Here, say the supporters of muscular irritability, is clear proof; the muscular substance of the heart contracts before the nerves are developed, and is therefore independent of them. To this, however, Funke replies that, at that early period no trace of genuine *muscular* structure is to be detected in the heart, the contractile tissue is quite embryonic. And why should not an embryonic contractile tissue receive its appropriate stimulus from embryonic nervous tissue?

On the other hand, the opponents of muscular independence

bring forward a case reported by the brothers Weber (*Archiv f. Anat. u. Phys.*, 1859). In a calf the spinal column and medulla were entirely wanting, from the second dorsal vertebra downwards. As a consequence there was complete absence, not merely of the spinal nerves issuing from that part of the cord, but also of the striated muscles supplied by these nerves, while the skin, tendons, and bones of the lower extremities were perfectly developed. Hence it has been inferred that the muscles are absolutely and entirely dependent on the nerves, even for nutrition; so much so, that they might be regarded as simple terminal nervous organs.

The case is an exceedingly interesting one, and the subject is well worthy of examination. However, in order exactly to estimate the value of the observation, we must be more thoroughly acquainted with the functions of the *nutritive* part of the nervous system than we are as yet, and especially with those of the ganglia on the posterior roots of the spinal nerves. For it was found by Axmann that in frogs, after the extirpation of these ganglia, the animals rapidly became dropsical, and their muscles flabby, and studded with small extravasations, showing clearly that a grave lesion of nutrition had been produced. It will be observed that this lesion followed injury of the *posterior* roots, and was therefore unconnected with motor influence. Also Schroeder van der Kolk, in his remarkable case of unilateral atrophy (*New Sydenh. Soc.*, p. 157, seqq.), shows that atrophy of certain muscles was associated with great diminution in the size of the ganglia of the corresponding nerves, although the motor roots of the nerves were not perceptibly affected. He also endeavours to prove that the amount of atrophy was not absolutely proportional to that of *motor* paralysis. Now it must be borne in mind that the question before us is not that of nutritive, but of motor independence; if, therefore, it is shown, as seems to be the case in Van der Kolk's instance, that nutritive and motor influences are perfectly distinct from each other, then the argument drawn from Weber's case loses very much of its weight, for in that instance both roots, and of course the ganglia, were entirely absent. Consequently, objectors might refer the non-development of the muscles to their *nutritive* dependence on the ganglia, while denying their motor functional dependence upon the nerves.

On the whole, it seems to me that anatomical evidence preponderates, though not strongly, against the doctrine of Haller. Arguments of a similar nature have been drawn from the close resemblance of the chemical and electrical properties of muscle and nerve. As, however, a detailed account of these arguments would occupy too much time, and as they are by no means conclusive, I shall omit them entirely, and proceed to

II. The argument derived from physiological experiment. It may be stated here, *in limine*, that the experiments performed by the older authors are entirely beside the point, inasmuch as they

fail to exclude the possibility of interference of the terminal part of the nerve, especially within the muscle. Thus, Reid, "having removed a portion of the sciatic nerve in a frog, and then exhausted the contractility of the muscles of the limb by powerful repeated galvanic shocks, found that contractility returned after a period of repose." — (Bennett, *Outlines*, p. 31.) The argument evidently intended to be drawn from this observation is, that since the section of the nerve prevented a possibility of the recovery of its irritability from the nervous centre, the recurrence of muscular contractility could only be accounted for by supposing that it depended on the muscle itself, whose nutrition was believed to be unaffected by the operation. But this is quite at variance with what has now been established with reference to nervous irritability. It is true, that if a nerve be cut, and if it remain in the living body, fatty degeneration and consequent loss of power of the peripheral portion will ensue. But it has been shown by Schiff, Waller, and others, that in *mammalia* this change is scarcely perceptible till three or four days after the operation; while in *frogs*, weeks and even months may elapse before fatty degeneration can be detected. Besides, when a motor nerve *does* lose its irritability, it is well known that, according to the law of Ritter and Valli, modified by Rosenthal, this loss proceeds in a peripheral direction, so that an irritant applied to the branches of a nerve will frequently produce contraction, when irritation of the trunk is unattended by any result. Consequently, we object to Reid's argument, *1st*, That there is no proof whatever that such a change had taken place in the cut nerve as to prevent natural restoration of the proper nervous irritability; and, *2d*, That even supposing that the upper part of the nerve had utterly lost its power of self-restoration, had become, in fact, quite dead, there is no proof that this loss had extended to the ultimate distribution of the nerve in the interior of the muscle.

Another experiment of Reid's is thus related by Carpenter (*Manual*, 2d edit., p. 213),—"The muscles of the hind leg of a rabbit, whose sciatic nerve had been divided, were found to lose their contractility almost completely in the course of seven weeks. They were much smaller, paler, and softer than the corresponding muscles of the opposite leg, and they scarcely weighed more than half as much as the latter. Now, when the nerves of *both* hind legs of a frog were cut, and the muscles of one of the limbs thus paralyzed were daily exercised by a galvanic battery, while those of the other were allowed to remain at rest, it was found, after the lapse of two months, that the muscles of the exercised limb retained their original size and firmness, and contracted vigorously, whilst those of the other had shrunk to one-half their original size the latter still retained their contractility." Now it certainly appears to me, that this account, instead of bearing in favour of muscular irritability, contains a strong argument against it, inasmuch as it shows the strict connexion between the muscular and the nervous

phenomena. Why did the muscles of the rabbit lose their contractility so much earlier than those of the frog? Simply, I should say, because, as has just been stated, in mammalia fatty degeneration begins very early in the peripheral portion of a cut nerve, whereas in frogs it may not show itself even for weeks. The loss of contractility was evidently due in the rabbit to advanced degeneration of the nerves, whereas, in the frog, the retention of contractility, even in the unexercised limb, depended on the comparatively slow change in the nervous tissue. But, it will be said, how can you explain the greater vigour of the muscles in the exercised limb of the frog than in the other? Here again we can use the experiment against the doctrine of muscular irritability. It is acknowledged by all physiologists that two of the most important conditions of healthy nutrition of nerves are,—1st, Their connexion with the central organs; and, 2d, Their intermittent activity. Now, in the one limb both of these conditions were abolished, in the other only one was interfered with, viz., connexion with the centre. Is it then to be wondered at, that in the limb deprived of two conditions of nutrition, we should find a much more rapid degeneration of the nerve fibres, and consequent atrophy of the muscles, than in the other, where only one condition was removed. It is only what we might have expected, and I am strongly inclined to believe that the accompanying atrophy of the muscular tissue was but a consequence and an indication of the advanced nervous degeneration.

In all physiological experiments on this subject the great difficulty is to prevent the irritants by which we endeavour to test direct muscular irritability from acting upon the nerve fibres and terminations contained within the muscular tissue. If an electric stimulus is directly applied to a muscle, contraction is produced; but I think no one will assert that in such a case the nerve fibres have not, equally with the muscular fibres, participated in the stimulus; there is no reason to believe that it is not conducted to them. Attempts have been made to obviate this difficulty in two ways,—1st, Various means have been used with a view of paralyzing the nervous fibres, and then investigating the properties of muscle by itself; 2d, Substances have been sought for, which should have the power of irritating muscular tissue, though powerless with respect to nervous.

The first paralyzing agent whose action we shall investigate is the Woorara poison, which has been so thoroughly examined by Kölliker and Bernard. When a small quantity of this substance is introduced into the subcutaneous tissue, *e.g.*, in a frog, it speedily produces paralysis of voluntary and reflex motions, the animal sinks on its belly with flaccid extremities. Into all the details of the attendant phenomena I need not enter, it is sufficient to say that there is perfect stoppage both of voluntary and reflex movements, and that we are quite unable to produce muscular contraction by the strongest stimuli applied to the trunks of the nerves. On the

other hand, direct application of stimuli to the muscular substance produces contraction just as before. Could anything be more perfect? Paralysis of the nerves, accompanied by contractility of the muscles, appears to be the strongest possible proof of the independence of the latter. Unfortunately, however, the case is by no means so simple as it at first appears. It is clearly shown, as a result of some experiments performed by Kölliker and Funke, that in this case the nervous centres and nerve trunks are *not* affected. Thus, Kölliker, after tying the abdominal aorta in a frog, inserted a piece of Woorara under the skin in the anterior part of the body. He presently found that, while voluntary motion was entirely gone in the anterior half of the body, the frog was still able to hop about with its hind legs. But, what was still more remarkable, the application of irritants to the skin of the anterior half of the body was followed by energetic contractions of the hind legs, while the fore legs and fore parts of the body generally remained quite flaccid. From this we are compelled to conclude that the centripetal trunks of the nerve, together with the nervous centres, are quite unaffected, and that, consequently, reflex irritation is conveyed from the skin of the fore part of the body through the centre to the hind limbs, which, therefore, contract violently; while, owing to the presence of the poison, the anterior limbs remain quite unmoved.

Still we might hold that this exemption applies solely to the centripetal or sensory trunks, and that the motor trunks are really paralyzed. This would, however, seem to be disproved by the observation of Kölliker, that if we tie the vessels of a single muscle, *e.g.*, the gastrocnemius, and then introduce Woorara into the subcutaneous tissue as before, paralysis of the gastrocnemius does not take place. That is to say, although the supply of poison to the nerve trunk is unaffected, paralysis does not ensue, because the supply to its branches within the muscle is cut off. From this we can only form one conclusion, *viz.*, that the poison does not act on the *trunks*, even of the motor nerves. Strong corroborative evidence is supplied by Funke, who observed that, in the most perfect paralysis by Woorara, the electromotor properties of the nerve trunks, so far from being abrogated, were in reality somewhat heightened; especially was this the case with respect to that negative oscillation (negative Stromschwankung) which is generally looked on as the true sign and inseparable accompaniment of functional activity of the nerve. We may thus conclude that, whatever part of the apparatus is affected by Woorara, it is not the nerve trunks. This immunity is probably to be attributed to the limited supply of bloodvessels to the nerve trunks, as it is well known that the blood is the great solvent of Woorara, while the poison is comparatively insoluble in parenchymatous juices, or in the secretions of mucous membranes.

On the other hand, it is exceedingly probable that Woorara does

not act on the structures contained within the sarcolemma. For, as is just stated, it is rather insoluble in muscular parenchymatous juice, and its operation is so exceedingly rapid that it can only be explained by the most rapid absorption. Hence we must maintain that it acts on those parts of the nerve fibres which, arrived at almost their ultimate subdivision, run up and down in the very midst of a rich capillary supply. Now the question which we have to settle is this: Are these subdivisions to be considered as the ultimate terminations of the nerves? Have we come in them to the last trace of nervous tissue? If so, it must be allowed that the probabilities would seem to be in favour of the doctrine of muscular irritability. There are, however, still two suppositions, both exceedingly probable, either of which would enable us to dispense with that doctrine. On the one hand, Kühne's discovery of the penetration of the sarcolemma by nerve fibres becomes of the highest moment. If his observation is extended, the ultimate terminations of the nerves must be considered as nourished by the parenchymatous juice, and consequently unaffected by the Woorara poison. In that case we should have to regard the Woorara, not as paralyzing the nerves, but as acting solely on the most vascular part of them, and so dividing them into two portions; a central, of nerve trunks, and a peripheral, of terminations within the sarcolemma. Hence, irritation of the central tract produces no result, because it is separated from the muscle by the vascular, and, consequently, poisoned tract of the nerve; on the other hand, direct irritation of the muscle produces contraction as usual, because it is conducted to the uninjured terminal portion of the nerve within the sarcolemma.

But even supposing that we admit, for the sake of argument, that Woorara poison *does* affect the very terminations of the nerves, it has been well shown by Pflüger (*Elektrotonus*, p. 29), that we are by no means compelled to infer on that account the existence of an independent muscular irritability. Nerves are well known to possess two great functions: 1st, that of irritability; 2d, that of conducting irritation. Now it is quite conceivable that one of these functions should be impaired, without the other being affected. And this is exactly what appears to be the case in Woorara poisoning. That the irritability of the nerve is unaffected follows, as I have already stated, from Funke's observation of persistence of negative oscillation. But, according to von Bezold's experiments with the myographion of Helmholtz (*New Syd. Soc. Year-book*, 1860), it would appear that after poisoning with Woorara, there is at first a retardation and ultimately a total loss of the conducting power of nerve. It would also appear that this loss takes place with very much greater rapidity in the intramuscular nerves than in the trunks.

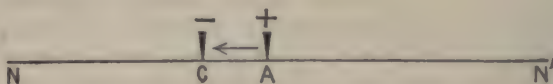
Now if we adopt the opinion that paralysis from Woorara depends on loss of conducting power, we can easily understand the difference in result between stimuli which are applied to a nerve trunk, and

those applied directly to the muscular mass. In the first case the nerve is of course called into action, but from the loss of conducting power, the stimulus is not conveyed to the muscle. On the other hand, where the stimulus is directly applied to the muscular tissue, it acts immediately on the ultimate terminations of the nerve, so as to excite their irritability. But as these ultimate terminations are in immediate connexion with the muscular fibres, there is no intervening ill-conducting tract of nerve, to prevent their stimulus from being at once transferred to the muscular fibres, and thus forming the condition of their contraction. So that, even in this case, the theory of independent muscular irritability is found to be unnecessary.

Various other arguments have been drawn from the action of Woorara by Bernard and others, in favour of the independence of muscles. As, however, there is no new principle involved in them, and as they contain nothing which cannot be brought within the general explanation already given, I do not consider it necessary to enter into the details which an intelligible account of them would require.

To understand the grounds of the next argument which has been introduced into this controversy, it is requisite that we should be acquainted with the facts established by Pflüger, with reference to the electric irritation of nerve. As there are in English but scanty accounts of these discoveries, I shall make the following preliminary statement:—

It was originally discovered by Dubois-Reymond that when an electric current is sent through a part of a nerve, in a longitudinal direction, the original electric state of the nerve undergoes a certain modification, to which he gave the name of *electrotonus* (*Elektrotonus*); and that this modification is very much greater in the neighbourhood of the superadded current, than at some distance from it. Pflüger added to this fact the discovery, that the parts of the nerve in the neighbourhood of the two poles of the superadded current, undergo *different* modifications, with respect to their irritability and their conducting power.



Let us suppose that, in the subjoined figure, the line NN' represents a segment of a nerve, and that a current is sent through the portion AC , in the direction from A to C : A is the anode and C the cathode. As to the modification of the part between A and C , I shall say nothing, as it is not requisite for my purpose; but the condition of the immediately adjoining parts AN' and CN , is in the highest degree important. Pflüger showed that, on the side of CN , we find a state of heightened irritability and conducting power

(Catelectrotone, or electrotone of the cathode); while on the side of A N' there is, on the contrary, *diminished* irritability and conducting power (Anelectrotone, or electrotone of the anode). If the superadded current is sufficiently strong, irritability and conducting power are completely suspended in the part of the nerve adjoining the positive pole: *anelectrotonic* paralysis is produced. The further any point in A N' is from the positive pole A, the less is its irritability affected, and at a certain distance we find the modification reduced to zero; but the stronger the current through A C, the longer is the part of the nerve A N', which becomes anelectrotonized, and, consequently, the further from A is the point of *no modification*. In this way we can easily see that if we suppose N to represent the nervous centre, and N the muscle to which the nerve is distributed, we can, by throwing a centripetal current through A C, paralyze a part of the nerve between A and the muscle. And further, if we select for A C a portion of the nerve very close to its insertion into the muscle, and if, in addition, we throw into it a very strong centripetal current, we can paralyze the *whole* tract of the nerve extending from the point A to its ultimate distribution.

The application of this principle to the question which we are considering has been worked out by Eckhard, Kühne, and Funke, and we cannot sufficiently admire the industry with which they have conducted their experimental researches, or the ingenuity of the arguments which they have drawn from the facts obtained by them.

Eckhard found invariably, after producing anelectrotone in the lower part of a nerve, so as, according to the theory, to paralyze the very ends of the muscular twigs, that a weak current, when applied to the muscle itself, failed to produce spasm on the completion and the breaking of electric contact. That is to say, a stimulus which, in ordinary cases, would have produced contraction of the muscle, failed to do so when the nerves were paralyzed by anelectrotone. The conclusion which he drew was, that the irritability of muscle is not independent, but arises solely from the influence of the intramuscular nerves.

The argument seems at first convincing enough, but there are several serious objections which may be brought against it. Thus it may be said that the superadded current not only affects the electric properties of the nerve, but also exerts a similar influence over those of the muscle which the nerve supplies—produces, in fact, anelectrotone and paralysis of the proper muscular tissue. This supposition is, however, completely negatived by the observation that, during the strongest anelectrotone of the muscular nerves, the proper muscular current is perfectly unaffected. For it is quite out of the question to suppose that anelectrotone should be propagated from nerve to muscle, without showing itself in some modification of the electrical properties of the latter.

There are, however, other objections which it is not so easy to get over. Thus, it is asserted by Kühne that the irritability of

muscle is not abrogated, but only very much lowered, by anelectrotonic of the nerves distributed to it. The subject of his investigations was the Sartorius of the frog, which he examined with great care, both anatomically and physiologically. It will be recollected that, as I have already stated, he denies the penetration of the sarcolemma by nerve fibrils, in the frog's muscles. He also asserts that, in the Sartorius of the frog, the nerve-trunks enter the muscle about the middle; that they then divide into nearly equal parts, and run in opposite directions towards the two ends of the muscle: that they do not, however, reach those ends, and that, consequently, the parts of the muscle adjoining the two ends are anatomically independent of the nerves. Further, he states that, on examining the amount of irritability of the various segments of this muscle, by investigating the amount of electric irritation requisite to produce contraction at each particular spot, he found that it diminishes, not gradually, but *saltatim*, from the point of entrance of the nerves, to the point beyond which they could no longer be traced: that the sudden diminutions in irritability had an anatomical basis in the disappearance of considerable parts of the nerve fibres; and that, at the extreme ends of the muscles, where nerves could no longer be traced, the irritability of the muscle had not disappeared, but had reached a minimum. He asserts that this minimum expresses the amount of irritability which is proper to the muscular substance itself, and which in no way depends on the influence of the nerves; and he also asserts that, after anelectrotonising the muscular nerves, he invariably found remaining in the muscle an amount of irritability which corresponded exactly to that of the extreme ends of the muscle in their natural and unaffected state. In other words, he believes that by anelectrotonic we can remove entirely the influence of the nerves, while we have remaining a true muscular irritability, which can be detected by careful investigation.

This train of reasoning, though founded on most careful observation of facts, and worked out with great ingenuity, is yet open to several serious objections. Thus I am not prepared to admit, in the face of the authorities already quoted, that the existence of muscular fibres, anatomically independent of nerves, is by any means established. The consent of so many eminent microscopists in the opposite opinion must render us very chary of admitting this, even on Kühne's authority, especially when we consider the minute part of the muscle to which he refers, and the much greater ease of establishing a positive than a negative assertion. That the irritability of the muscle should diminish as we proceed in our investigation, from the point of entry of the nerve-trunk to the extremity of the muscle, is quite easily explained, even while we maintain that it depends solely on the intramuscular nerves. For it has been established by Pflüger, that, *cæteris paribus*, the effect produced on a muscle by an irritant applied to its nerve, varies directly with the distance of the point of application from the muscular

tissue, or, as he expresses it, with the length of the *myopolar* tract. That is to say, any irritant applied to a nerve immediately before it enters its muscle, will produce much less irritation than one applied to it directly after it leaves the spinal marrow. Making use of this principle, we easily see how natural it is that irritants applied (although indirectly) to the intramuscular nerves of the *Sartorius*, immediately after their division, should produce much greater effect than the same irritants if applied near the end of the muscle. For, in the former case, the *myopolar* tract, or tract of nerve through which the irritation has to run, is much the longer, at least in many of the nerve fibres, and consequently the nervous irritation has an opportunity of accumulating before being entirely expended on the muscle.

It is true that Kühne has anticipated this objection, and has endeavoured to meet it by stating that the diminution of irritability was not *gradatim* but *saltatim*, and, consequently, in part at least, was not to be accounted for by this principle. A statement of degree, like this, is, however, most difficult of proof, and depends very much on the previous notions of the observer. We are consequently justified in receiving with great suspicion positive statements like those of Kühne in a matter so little capable of exact demonstration.

Another objection to the argument drawn from anelectrotone against muscular independence, was first noticed by Eckhard. It is shortly this: although electric stimuli fail entirely to produce contraction of a muscle in which the muscular nerves are anelectrotonised, still the muscle reacts perfectly on the application of chemical stimuli, *e.g.*, a solution of common salt. Eckhard, who was the first to examine carefully the phenomena of chemical irritation of nerves, endeavoured to explain this apparent exception, so as to bring it into accordance with what he held to be the general laws of chemical irritants. He believed that a chemical solution, *e.g.*, of common salt, when applied to the trunk of a nerve, produced irritation of the nerve, and consequently of the attached muscle, only in virtue of its producing instant death of a segment of the nerve; and that a continuous irritation was the result of a progressive loss of vitality in contiguous segments of the nerve. Consequently, supposing that muscular irritability depended on the nerves, he explained chemical irritation during anelectrotone in this way. The irritants which are applied to the muscular substance act through it on the intramuscular nerves, so as to produce loss of irritability in certain segments of them; consequently, the condition of anelectrotone fails to be propagated to the distal portion of the nerves, which therefore regain their irritability and conducting power; and, simultaneously with this destruction of vitality, the chemical irritant produces a stimulus of the nerve itself, which, being now conducted without obstacle to the muscle, is there transformed into muscular contraction.

Funke, following Kölliker, objects to the principle laid down by Eckhard, that chemical irritation of a nerve is accompanied by instant death of the part affected. Accordingly, he refuses altogether to accept Eckhard's explanation of the exceptional phenomenon we are considering. He substitutes for it the hypothesis that chemical irritants may, even during anelectrotone, still act upon the ultimate terminations of the nerves, so as, in virtue of the absence of an ill-conducting tract of nerve fibre, to be transferred to the purely muscular tissue, with the fibres of which they are in direct contact. But it appears to me that, even if we decline to admit Eckhard's view in its totality, his argument will still possess considerable force. For although we may not allow that chemical irritation produces instant *absolute death* of the segment of nerve affected, yet there can be no doubt that it produces an immediate change of the very highest consequence. This change consists in a sudden abstraction of water. Now, it is well known that evaporation of a portion of nerve causes a most serious interference with its electrical properties. Accordingly, although we were to admit that these properties might be subsequently restored, what is there to prevent our arguing that chemical irritation suspends them, for the moment at least, and especially those in virtue of which anelectrotone is conducted to the intramuscular nerves; that it consequently removes the influence of anelectrotone; and that we therefore find it accompanied by contraction of the muscle? In all this it seems to me that there is nothing inconsistent with reasonable inference.

Having thus shortly considered the most interesting of the paralyzing agents, I must now proceed to an examination of the second department of the argument, or that drawn from the supposed existence of substances which act as direct irritants of muscular tissue, although, when applied to nerve, they either produce a very inferior irritation, or even no irritation at all. Kühne has examined this subject with very great industry, and his experiments have been repeated (though not always confirmed) by Funke and Schelske. To enter into the details of the action of the various substances which they examined, would require more space than I have at my command: I shall give merely the most general conclusions adopted on either side.

Kühne believes that ammonia and solutions of certain salts, *e. g.*, sulphate of copper and acetate of lead, act strongly on muscle, and in no case produce irritation of nerves: that mineral acids and acetic acid act on muscle in much greater dilution than on nerve: and that lactic acid, glycerine, and bile, act as nerve irritants only when concentrated, and as muscular irritants only when diluted. If these observations were really correct, the evidence furnished by them would amount to a strong probability; but the other observers I have just mentioned differ from Kühne in several points. Thus they deny that ammonia is a purely muscular irritant, asserting

that it acts equally, though weakly, upon both muscle and nerve. As for the metallic salts, to which Kühne had ascribed a peculiar influence on muscle, it is asserted by Schelske and Funke that their power as nervous stimulants differs only in degree from that which they possess over muscle, and that they invariably produce contraction when applied to a nerve in sufficient concentration. These authors likewise deny that a valid argument can be drawn from the difference which Kühne observed in the amount of concentration of certain substances, necessary to produce irritation of muscle, as compared with nerve. For, on account of the bare and comparatively unprotected condition of the intramuscular nervous fibres, as compared with those in the nerve trunks, it is easily conceivable that a solution so weak as entirely to fail in irritating the trunks, should still produce irritation in the intramuscular fibres, provided that it reaches them. That is to say, if there is nothing in the nature of the substance to prevent its infiltrating through the *muscular* structure, it will, when it reaches the proper intramuscular nerves, find a more exposed, and consequently more irritable tissue than it would have found in the nerve trunk itself, as the latter is protected by connective tissue. It is in this way that we are to explain the influence of dilute mineral acids, metallic salts, etc., as well as the action of the injection of distilled water into the capillaries of a muscle.

We find the converse of this in the case of such a substance as lactic acid, which, in the concentrated state, acts on nerve, but on muscle only when diluted. In the first case, owing to its consistence, it fails to infiltrate into the muscular tissue, and consequently has no effect on the intramuscular nerves. But, as soon as it is sufficiently diluted to enter the muscular substance, and consequently to reach the intramuscular nerves, it at once shows its irritant properties. In fact, it may in this way act on the twigs within the muscle, when it is in a state of dilution which would be quite inoperative with respect to the nerve trunks.

We thus find that the chemical argument, like the others which we previously considered, fails to decide the question in a satisfactory manner. Our conclusion, from a survey of the whole controversy, must undoubtedly be, that while certain circumstances seem to preponderate in favour of the independence of muscle, other methods of proof tell strongly against it. The matter is one, therefore, on which our judgments must for the present be suspended, and which can only be settled by further careful investigation of facts.

It has been my object, in giving an account of this controversy, to avoid as far as possible those points of detail which would require for their comprehension a very minute acquaintance with the recent discoveries in general nervous physiology. I have consequently been compelled to limit myself to a comparatively superficial account of the principal departments of the discussion. There are many

most interesting and ingenious arguments of a secondary character, which I have been obliged completely to overlook. Of these, one of the most important is the theory of idio-muscular contraction, so ably advocated by Schiff, which, unfortunately, space forbids my entering upon.

In spite, however, of these omissions, I hope that I have succeeded in showing that the opinions on the subject of muscular irritability which are expressed in the ordinary English text-books, are by no means so well founded as it was at one time the custom to believe.

MALTA, *February* 1863.

ARTICLE IV.—*On the Characters, Actions, and Therapeutical Uses of the Ordeal Bean of Calabar* (*Physostigma venenosum*, Balfour). By THOMAS R. FRASER, M.D., Assistant to the Professor of Materia Medica, Edinburgh University; late Resident Physician, Royal Infirmary, Edinburgh.

(An Inaugural Dissertation for which a Gold Medal was awarded by the University of Edinburgh at the Medical Graduation of August 1862.)

SECTION I.—HISTORY, EMPLOYMENT AS AN ORDEAL, BOTANICAL CHARACTERS, ETC.

SOCIETY, in sacrificing much to the hazardous cause of geographical exploration and discovery, has frequently been rewarded by the acquisition of substances which have proved of great service to man in a civilized state. There can be little doubt, that a further careful study of the properties of many substances so discovered, would increase our list of economic materials, and especially add to the catalogue of the therapist many agents possessing medicinal virtues.

Within a comparatively recent period a considerable amount of attention has been directed to the seed of a leguminous plant of West Africa,—the Ordeal Bean of Calabar. First scientifically noticed by Dr Daniell about the year 1840, and alluded to in a paper read by him before the Ethnological Society in 1846,¹ it has since attracted a large amount of attention from Europeans residing in the district in which it occurs. This bean is used principally as a state poison, as a supposed means of discovering crime and a certain method of punishing it,—the suspicion of guilt being held to be verified if it prove the cause of death.

The mode of trial by ordeal, in one or other of its forms, is of extremely ancient origin. It may be stated generally to have existed in every race and country during its stage of infantile barbarity. The ancient annals of Greece² show its existence. In

¹ Edinburgh New Philosophical Journal, vol. xl., 1846, pp. 319, 320, 321.

² Antigone of Sophocles, v. 270.

the Bible one of the earliest accounts of such a trial is found, where a cup of "bitter water" is commanded to be drunk for the detection of conjugal unfaithfulness.¹ In Hindostan and China, in Japan, Pegu, Java, the Canary Islands, and many other places, various forms of ordeal were, and in many are still employed; and in our own country the practice existed to a great extent until the thirteenth century, when, in the reign of Henry III., a law is stated to have been passed for its abolishment.² In the other countries of Europe it had the like prevalence during the medieval periods. It would occupy too much space to attempt to enumerate the many and ingenious methods which were made use of in such trials. They may be naturally classified under two great divisions,—those whose application was *external*, and those in which some substance was introduced into the system, or where it was *internal*.

The *first* includes the well-known trials by fire, water, the combat, and the balance.

The *second* class comprises what may be regarded as the more curious and interesting forms, and it includes the large section of the vegetable ordeal poisons. This description prevails, as might be expected, in the tropical latitudes, where plants containing principles of active energy are more abundantly to be met with. The actions of these vegetable agents have, no doubt, been narrated in very exaggerated terms, and in many instances erroneously. Merolla describes the "Ncassu," a plant employed as an ordeal at Congo, as possessing properties so pernicious, that birds even "fly from the tree, for if they settle on its branches they immediately fall down dead."³ Many of them must, at the same time, really possess energetic actions, in order to suggest the assertion of such absurdities, and many may yet become valuable as therapeutic agents.

The general *rationale* of the use of the ordeal will be more satisfactorily explained by entering on a few details as to its employment at Calabar. The region included in the term Calabar occupies a district of West Africa, in the neighbourhood of the Bight of Biafra, and extending along the course of a considerable river—the Rio Calbary, Old Calabar, or Oude Calburgh. Its boundaries are indefinite. It is situated between 4° and 8° N. lat., and 6° and 12° E. long., and is estimated to have a length of one hundred miles, and a breadth of fifty. The natives are descended from the Ibibio tribe, who inhabit a region extending westward from Calabar to the river Niger. Their government is oligarchical. Several chiefs rule the towns, each of which separately forms an independent government, joining with others in times of danger for the common cause, and possessing with them a common council.

¹ Book of Numbers, chapter v., 17–31.

² Blackstone's Commentaries, vol. iv.

³ Merolla's "Voyage to Congo." See Pinkerton's "Voyages and Travels," 1814, vol. xvi. p. 222.

This is presided over by one of their number, who, on this account, receives the title of king, though he possesses no special authority, and has no jurisdiction beyond his own village. Next in power are the medicine-men,—“*mbia-idiong*” and “*mbia-ibok*,” whose duties include the superintendence and conduct of the usual round of processions, feasts, incantations, and the other juggleries of heathenism. In their condition of ignorance, superstition reigns supreme. Everything unexplainable, and all that occurs beyond the ordinary course of things,—with events even of everyday occurrence, as the usual occasions of sorrow, joy, disease, and death,—are ascribed to the mysterious agency of witchcraft. And it is for the discovery of the operations of this evil genius that the discriminating property of the ordeal bean is required.

Any person may lay a complaint against another. The charge is made before one of the chiefs of the village. A council of neighbouring chiefs is summoned, the accusation is heard, and the reasons in support are stated. The accused is then asked for his or her defence; the answer is invariably a demand for “chop-nut,” which is always granted. The ordeal is administered in the most public part of the town, and the whole proceedings are watched by a crowd of onlookers. The priest, as administrator, offers up a prayer that the gods may continue to the bean its power to kill the guilty. The accused is then permitted to receive the ordeal bean, either in the form of infusion or of the dry kernel. Sometimes a portion of one bean is only taken, at others as many as twenty-five: according to the discretion of the priest, or until innocence is held to be declared by the production of vomiting, or the guilt of the accused proved by his death. The medicine-men are by no means scrupulous in the accomplishment of their object; and if, from any cause, they desire the death of their victim, a club is employed to compensate for the slowness or failure of the action of the poison.

Should the accused escape, the accuser is liable to undergo the same trial, to show that he does not possess “free-mason” or witchcraft against the accused. A salutary check is thus placed on treachery or private enmity.

The confidence of the natives in the power of the bean is remarkable. They do not believe that any peculiar virtue resides in it, or even that it possesses any disagreeable or dangerous properties, but consider it an instrument indifferent in itself, but employed by the gods to show who is and who is not guilty. The evident denial which is given to such a theory, by the fatal effects which are known to be produced when the administration is without the sanction of a chief, and, therefore, illegal or in violence of their strict rules of trial, is overcome in a very simple and ingenious manner. In such cases the administration is regarded as a murder, and punishment follows. The gods are displeased because the victim consented to eat, and they kill him. But they are also

aware that a death so caused will be investigated by the chiefs, and thus they make sure that the administrator will be charged with murder, and himself executed.

The number of deaths occasioned by this ordeal is very considerable. The population of Calabar is roughly estimated at 100,000, and of these upwards of 120 are reckoned annually to be thus sacrificed.

Botany.

The bean is the product of a leguminous plant, the *Physo stigma venenosum* (Balfour), found in the neighbourhood and to the west of Calabar Proper, in the territory of a tribe called Eboe (Ibio, Aboi, Abo, or Ibo), who inhabit a region extending westward from the source of the Niger. The plant is described as a *runner*, climbing on the bushes and trees in its neighbourhood; and this character was well shown in the plants which have been cultivated in the Edinburgh Botanic Garden. Its habitat is on the sides and edges of streams, thriving best on swampy river banks. The ripe beans are frequently dropped into the stream, and carried down to Calabar in considerable quantity, so that the natives obtain their supply principally from the banks of the river, irrespective of what is used judicially by the "idol-priests." From this source also was derived one of the parcels of the bean for which I am indebted to the Rev. John Baillie. The plant is perennial, probably producing fruit only after some years. The fruit ripens at all seasons of the year, in common with that of many other tropical plants; but the most abundant crop is produced in the rainy season from June to September inclusive.

The following botanical details are extracted from Professor Balfour's paper in the Transactions of the Royal Society of Edinburgh:—

Natur. order—Leguminosæ. Sub-order—Papilionaceæ. Tribe—Euphaseolæ.

Genus and Species—*Physo stigma venenosum*.—It has generic characters closely resembling those of *Mucua* and *Phaseolus*, but is separated from the former by the characters of the flower and pod, and from the latter by its seed. It has accordingly been placed by Professor Balfour in a separate genus, *Physo stigma*, and is itself the only known species, *venenosum*.

Generic Charact.—Root, spreading with numerous fibrils, often having small succulent tubers attached. Inflorescence, axillary; on pendulous multifloral racemes; rachis of each raceme zig-zag and knotty. Calyx, campanulate, four cleft at apex, the upper division being notched and its segments ciliated. Corolla, papilionaceous; veined with a pale pink, having a purplish tinge, and curved in a crescentic manner. Stamens, ten, diadelphous. Pistil, more than one. Stigma, blunt, covered by a remarkable ventricular sac or hood, which extends along the upper part of the convexity of the style, having a resemblance to an "admiral's hat set in a jaunty manner." Legume, dark brown and straight, when mature, about seven inches

in length, elliptico-oblong, with an apicular curved point, and with outer and inner integument easily separable. Seeds two or three, separated from each other by a woolly substance.¹

Characters of the Seed or Bean.

The part of the plant of interest on account of any known properties is the *seed or bean*.

Synonymes.—Esērē nut; the bean of the Etu esere; chop nut; the ordeal bean of Calabar.

Form.—Irregular reniform, having the appearance of a somewhat flattened fusiform body bent on one of its edges. It has two margins, a shorter or concave and a longer or convex, and two flattened surfaces. Extending along the convex margin is a sulcus, having a minute aperture near one of its extremities.

Colour.—As obtained from Calabar the beans have a grey colour, and are incrustated with earthy matter. This is readily removed by washing, and a somewhat shining integument is exposed of various shades of brown, ranging from a light coffee to an almost perfect black.

Sulcus.—On the convex edge is the furrow or sulcus already alluded to, with elevated edges, which have, externally, a reddish black hue, while, within, the sulcus is generally brown, with a shade of yellow. It extends unequally towards either extremity; at the more extended portion, it runs along a part of the extremity of the bean, and terminates in a narrow furrow; at the shorter end, it has a more rounded termination, and is pierced by a foramen. The bottom of the sulcus is of a grey or reddish black colour, and has two parallel markings extending down its centre.

Dimensions.—The average length is 1 and 1-16th of an inch, and varies from 1 inch to 1 and 8-16ths. The average breadth is 12-16ths of an inch, and varies from 10-16ths to 14-16ths. These measurements are the extremes in each direction, and the sides slope from the greatest breadth to the comparatively narrow extremities. The average thickness or breadth from one flattened side to the other is 8-16ths, the maximum 11-16ths, and the minimum 6-16ths of an inch.

Weight.—The specific gravity is .946, therefore less than that of spring-water, and we can thus understand how the beans should be conveyed down the rivers to the seacoast. A very few, however, sink in distilled water; out of 300, I have found eighteen such, or 6 per cent. The bean weighs, on an average, 63.263 grains. The greatest weight met with was 94, and the least 25 grains.

When the covering was removed from the bean, the embryo was found to weigh, on an average, 46.2 grs., varying from 21 to 73 grs., and the removed spermoderm 16.73 grs., varying from 13 to 19 grains.

¹ See Professor Balfour's paper in the Transactions of the Royal Society of Edinburgh, vol. xxii. Part II.

The external tegument is of great hardness and toughness. It is with difficulty cut with a knife, and considerable force is required to break it in a mortar. Its internal surface is of a bluish grey colour.

So slight is the absorbing power of this covering, that the bean may be exposed to the action of *cold* water for a long time without undergoing any change. A bean was carefully measured and weighed, and placed in a covered vessel containing water, in which it was left for four months. When examined, no change had been produced in the dimensions or weight of the bean.

When exposed to the action of water of a temperature of 212° , or to the action of steam for a few hours, the bean swells by imbibing a quantity of fluid, which may be found in the central cavity, and the spermoderm becomes soft, and can be cut readily into sections with a knife. If the heat be prolonged, the spermoderm cracks and fissures, and the colour of the kernel is changed from a yellowish white to a brownish hue. A fractured portion has a distinct odour of *cocoa*.

When a transverse section of the spermoderm is examined microscopically, the following structures are shown:—

1. At the bottom of the sulcated hilum are two bodies separated in the median line, forming the floor of the sulcus, and extending a considerable way up its edges. They are about the 1-157th of an inch in perpendicular thickness at the centre, and taper towards the ends. They consist of an aggregation of rods, each extending through the whole depth of the structure, and terminating at both ends in thickened extremities.

2. *Outer Layer of the Spermoderm.*—It is very similar in structure to the above, and forms the external envelope of the spermoderm. It extends over the entire surface of the bean, except at one end of the floor of the sulcus, where the opening of the foramen occurs. It is between the 1-138th and 1-117th of an inch in perpendicular thickness, and consists of a number of rods placed side by side, each rod being about the 1-2250th of an inch in thickness, and terminated by broad extremities.

3. Internal to this is the *middle* and principal layer of the spermoderm. It varies in thickness at different places from the 1-8th to the 1-130th of an inch, having its smallest measurement at the narrow convex edge of the bean, and its greatest at the hilum. Its structure is cellular, consisting of stellate cells, having six or eight branches which communicate with branches from the neighbouring cells. The cells diminish in size and in the length of their branches as they approach the exterior, and here they appear to form a separate membrane. This is in reality a compressed collection of cells, which extends over the exterior of the middle coat of the spermoderm to a fibro-vascular body to be presently described, and from this to the internal surface of this middle layer.

4. *Inner Coat of the Spermoderm.*—It consists of dark ligneous

tissue, forming a continuous layer immediately below the former, and varies from the 1-470th to the 1-20th of an inch in thickness.

5. *A Fibro-vascular structure* embedded in the middle layer, immediately below and extending along the whole length of the sulcus. In a transverse section it is seen to possess an elongated ovoid form, and from its lighter colour it is apparent to the naked eye. It has a perpendicular diameter of about the 1-65th of an inch, and a transverse diameter of about the 1-120th. In a transverse section, it appears to contain a number of irregularly oval cells, with transverse markings, having their long axes in the same direction as that of the containing structure.

6. *Kernel or Embryo*.—It consists of two large concavo-convex cotyledons, of a creamy white colour, and easily broken in a mortar or scraped with a knife. In a transverse section these are seen to be in close contact externally with the spermoderm, and internally to be quite separated from each other, except at the margins of the bean. A large cavity is thus left in the centre, which communicates with the external atmosphere by means of a minute foramen so small and so narrow as to give no opportunity for the escape of the contained air when the bean is immersed in water. Projecting into this cavity, immediately below the broader extremity of the hilum, may be found the plumule with its two radicles.

Microscopically, the kernel consists of a cellular texture, with cavities of hexagonal, and often of very irregular one-sided form. These cells vary from the 1-650th to the 1-140th of an inch in diameter. They contain from one to six starch corpuscles, which are readily detached by washing, and give the usual reactions with iodine, bromine, and boiling water. The general form of these starch granules is an elongated oval, frequently approaching an irregular reniform shape or rounded parallelogram. They have usually a regular margin, but this is often indented. The surface has, in the majority of cases, a central line in the long axis, surrounded by concentric rings, but frequently the central line is superseded by a dark space containing amorphous granules. Occasionally, dark radial lines extend, from the central line or space, more or less completely to the circumference, presenting an appearance similar to radiated cracks in a transparent sphere.

The average length of the starch granule is 1-440th of an inch, varying from the 1-700th to the 1-300th. The average breadth was found to be 1-625th of an inch, and varied from the 1-920th to the 1-400th.

The bean has been always received remarkably free from all disease,—only one form of abnormality, scarcely deserving the name of disease, having been found. This occurs between the spermoderm and kernel, and affects the inner surface of the former and the outer of the latter. It consists, on the kernel, of a circular, somewhat dark, indented space, varying in diameter from the 1-6th to the 1-8th of an inch, and having a central irregular depression from

which a number of faint lines diverge towards the circumference. The kernel is found much softer than usual within this area. On the inner surface of the spermoderm a corresponding space is found, of a brownish colour, and distinct from the usual bluish grey.

This appearance is probably due to the attack of an insect, although our research has never succeeded in finding one.

SECTION II.—PHYSIOLOGICAL ACTIONS.

Physiological Action of the Seed or Bean.

No part of the *Physostigma venenosum* is known to possess active properties except the seed or bean. Experiments, with results of a completely negative character, were performed with the stem, of which I received a supply from Professor Balfour.

A. Actions of the Spermoderm.—When a considerable quantity of the alcoholic extract of the spermoderm is introduced into a part of the cellular texture of a rabbit, the animal, after the first few struggles, shows symptoms of uneasiness by a restless and disturbed manner. In five or six minutes, urine is voided in a copious stream, paralysis commences in the extremities, the posterior generally yielding in the first place, and in a few minutes the animal ceases to struggle when lifted by the ears. Fæces are soon passed, and this evacuation persists during the effects of the administration, —the fæces being at first normal, but becoming gradually softer, and ultimately nearly fluid. In about twenty minutes from the commencement of the administration, the pupils are observed to be contracted, not however to any extreme degree, and always remaining under the influence of light. About the same time the muscles of the neck become affected, and the head appears to be supported with difficulty. It has a trembling motion, and is soon after laid on the table. The whole body is then extended, and the animal lies on the thorax and abdomen. Urine and fæces continue to be frequently voided, and in about *thirty minutes* the respirations become noisy. The animal may recover its proper position, and stand for a short time in a shaky manner, but it soon falls again; and this process is repeated until the paralysis is completely recovered from,—generally in about *two or three hours* after the administration.

Consciousness is retained during the whole time. The animal can hear, and is sensible to impressions which cause pain. Reflex action is impaired, but never completely lost. Fæces and urine are passed very frequently for about *twelve hours* after the recovery from the paralysis. The paralysis is a most striking symptom. It is most distinctly shown by the inability of the limbs to support the body, and by the shaking of the head from incomplete enervation of the muscles of the neck.

Fatal results have not been produced in any experiment, although doses of the alcoholic extract, varying from one to four grains, have

been given. Each grain of this extract is equal to sixteen of the powdered spermoderm, and it follows that the alcoholic extract from sixty-four grains did not produce death.

The spermoderm has evidently an action on the spinal cord of a sedative nature, as is shown by the muscular paralysis and the contraction of the pupils. On the relation of this latter symptom, with the effects of neurotic agents, I shall have occasion to enter more fully when treating of the actions of the kernel. There is, besides, what appears to be a specific action exerted on the secretions of the intestinal canal and kidneys, both of which are increased in quantity, causing micturition, with the escape of very fluid fæces.

The most prominent actions of the spermoderm are therefore sedative on the spinal cord, hydragogue cathartic, and diuretic.

B. *Actions of the Kernel.*—1. *On Vegetables.*—The infusion of the powdered kernel appears to produce no bad effects on certain plants, while on others it exerts a sedative action. No explanation can be advanced of this variety of effect.

This infusion serves as a menstruum for the generation of infusoria with as great rapidity as one of ordinary vegetable matter.

II. *On Animals.*—a. *Constitutional.*—When a *small* fatal dose of the kernel is administered to one of the lower animals, a train of symptoms is produced usually in the following order:—

A slight tremor is first seen, especially at the posterior regions, and this extends forwards to the anterior extremities and the head. The limbs yield immediately afterwards, the posterior becoming generally first paralyzed, and the animal lies extended in a state of almost complete muscular flaccidity. A few attempts may be made to recover the normal position, but they are usually ineffectual. The bowels, in some cases, are evacuated. The pupils *contract*; as the symptoms advance, the respiration becomes slow and irregular, with a distinct stertor accompanying both inspiration and respiration, and frothy mucus escapes from the mouth. A few muscular twitches occur, especially in the extremities. Reflex action cannot be produced by either pinching or pricking the skin. By and by the eyelids do not contract when touched, or even when the eyeball is pricked. On lifting by the ears, the limbs hang inertly, and the only sign of life is an occasional gasping inspiration, which also soon ceases, and the animal appears dead.

Consciousness is preserved during the whole time, until the power of expression is lost. During incomplete paralysis, proofs of sensation may be obtained by pinching the ears or pricking the skin. Immediately after death the pupils dilate.

On opening the body, the various muscles which are cut contract. The diaphragm and muscles of the extremities may be excited to action by pinching the phrenic and sciatic nerves, and the contractility of the muscles generally is retained for some time after death. The heart is found acting regularly, and the intestines exhibit

distinct vermicular action. The heart may continue its action for one hour and a half after death. Its chambers usually cease to contract in a definite order, the left auricle first losing its contractility, then the right and left ventricles, and after an interval the right auricle. The large veins in the thorax are found distended. The surface of the brain is injected, and of a dark colour, and the spinal cord appears normal as to its supply of blood. The lungs are engorged: in two experiments, this had proceeded to such an extent that detached portions sank in water (Experiments 2 and 7). The kidneys and liver are dark, and their vessels appear full of venous blood. The back of the tongue is injected, and the fauces contain frothy mucus, which covers the top of the larynx, but seldom extends to the trachea. Serous fluid is found in the abdomen to a greater or less extent. The stomach is usually full, and no change can be detected in the digestive tract.

When a *large* fatal dose of the kernel is administered, the hind-limbs almost instantly yield, and the animal falls. It lies flaccid and in any posture on the table, and exhibits muscular power only by a few twitches. The pupils contract; in a few cases fluid escapes from the nostrils, and the lachrymal secretion is increased. Reflex action cannot be produced by irritation, and the respirations after a few gasps cease.

The pupils dilate immediately after death. On opening the body, a few muscular twitches occur, less strong and numerous than when a small dose is given.

The heart is found distended and passive: irritation, however, produces contraction for about ten minutes after death. The vermicular action of the intestines is very much diminished, and can scarcely be observed. Pinching of the sciatic and phrenic nerves produces no muscular contraction. The mesenteric arteries and veins may be readily distinguished by the colour of their contents. The same difference is evident in the aorta and *venæ cavæ*, and the whole vascular system is well-filled. The brain and spinal cord never presented any abnormal appearance, but had their vessels full without any injection.

On incising the heart's chambers, they are found full, and the contents of each distinctly different in colour (Experiments 13, 15, 26, etc.). The stomach and intestines are usually full and the bladder distended. The liver, lungs, and other organs appear quite normal.

These effects were produced whatever the channel of introduction. I have made experiments in which various preparations of the kernel were introduced by means of the principal tissues and systems of the body,—

By means of the *circulatory* system, through direct injection and application to a wounded surface (Experiments 1, 2, 13, etc.).

By means of the *nervous* system, through immediate contact with nerve substance (Experiments 16 and 18).

By means of the *respiratory* system, as by injection into the tissue of the lung (Experiments 14 and 15).

By means of the *nutritive* system, through introduction into the stomach and rectum (Experiments 7 to 12).

By means of the *muscular* tissue, by direct contact (Experiment 17).

By means of the *serous tissue*, as into the cavities of the pleura, pericardium, and peritoneum (Experiments 4, 5, and 6).

By means of the *mucous tissue*, as by contact with the Schneiderian, auditory, and conjunctival membranes (Experiments 23, 24, etc.).

The effects in each have only varied in their rapidity, and a connexion apparently exists between the degree of this rapidity and the class of symptoms produced. Direct injection caused the most rapid results; then introduction into cellular and serous tissues; and, lastly, contact with the mucous membrane.

I have never succeeded in producing any symptoms in the rabbit by application to a surface denuded of cuticle (Experiment 21).

b. Topical Action.—When the alcoholic extract is placed in contact with living contractile tissues, their function is suspended. When a muscle is dissected, and carefully painted over with a small quantity of the syrupy extract, in a very short time it loses all power to contract, when irritated either directly or through the medium of its nervous supply (Experiment 17).

The cardiac muscle may be so affected by injecting the syrupy extract into one of its cavities (Experiment 19).

When the exterior of the heart is painted, a temporary effect only is produced, and the contractions recur after an interval (Experiment 20).

The vermicular action of the intestines is almost instantaneously stopped, in a limited portion, by painting a small quantity of the syrupy extract over that portion (Experiment 21). A similar result follows the injection of the infusion into the rectum (Experiment 9).

The same effect is produced on the eye by direct application, as by introduction through the system; contraction of the pupil, confined in this instance to the eye on which the preparation is applied, being very soon caused (Experiment 25).

A local inflammatory action results where the preparation has been in contact with certain of the tissues, a distinct congestion being apparent on examination after death. This is only seen when the preparation has been in contact with cellular and serous textures, never in the case of a mucous membrane. It appears to be an example of the general phenomenon of a foreign body producing a local inflammation, and not of any specific irritant property of the poison.

When the syrupy extract is applied to the cutis of worms, a very rapid action ensues. A little uneasiness is evidenced by wriggling.

This is quickly followed by inability to progress, and by absence of reflex action or irritation. Soon after the worm lies motionless and contracted, slimy mucus is exuded, and death ensues (Experiment 23, *a.*). When a limited portion, as one-half, is carefully painted over with this extract, the paralysis and other symptoms are for some time confined to that portion, whether anterior or posterior (Experiments 23, *b.* and *c.*).

The physiological actions of the bean were produced with the greatest energy on birds. Experiments were made with rabbits, cats, dogs, guinea-pigs, frogs, lizards, beetles, flies, leeches, worms, and several genera of the molusca.

Generalizations.—From these results, and especially from the two varieties of action and appearances after death, it is probable that the seed or bean of *Physostigma* exerts its influence primarily on the spinal cord, and that its action is one of *depression*.

Along with this there are various special actions, as the paralysis of the heart, and the contraction of the pupils. The latter is of considerable importance in illustrating the action of the bean.

Valentin¹ has arrived at the conclusion, after an extended series of experiments, that the iris receives its motor supply from two sources,—from cerebral and from spinal nerves. He has also shown that the cerebral filaments are distributed to the circular muscle or *contractor* of the pupil, and the spinal to the radiating fibres of the iris or *dilator* of the pupil. It follows from this, that the condition of the iris, and consequently of the pupil, may be influenced by agents operating on the distributed nerves or on their origins. Thus, a stimulus applied to the spinal filaments will occasion *contraction* of the *radiating fibres* and *dilatation* of the pupils, and a stimulus applied to the cerebral fibres will cause, through the circular fibres of the iris, contraction of the pupil. An agent producing an inverse effect on either system of nerves will, in the same way, produce an inverse result.

A little consideration will show that the condition of the pupil may be influenced through its nervous supply, in at least six different methods,—

- 1st, By cerebral irritation.
- 2d, By cerebral depression.
- 3d, By spinal irritation.
- 4th, By spinal depression.
- 5th, By a combination of cerebral irritation, with spinal depression.
- 6th, By a combination of cerebral depression with spinal irritation.

I have arranged several of these effects as produced by poisons in a tabulated form, and the connexion between the physiological actions and the condition of the pupil is very evident.

¹ De Functionibus Nervorum Cerebraliū et Nervi Sympathici: 1839, pp. 109, 114.

Methods in which the Size of the Pupils may be Affected.

TWO CEREBRAL.

1. Cerebral Irritation = *Contraction*, as with Opium.¹
2. Cerebral Depression = *Dilatation*, as with Belladonna,² *Æthusa cynapium*,³ *Hyoscyamus niger*,⁴ Alcohol,⁵ *Veratrum album*.⁶

TWO SPINAL.

3. Spinal Irritation = *Dilatation*, as with Strychnia.⁷
4. Spinal Depression = *Contraction*, as with *Physostigma venenosum*, *Aconitum Napellus*.⁸

TWO COMBINED CEREBRAL AND SPINAL.

5. Cerebral Irritation and Spinal Depression = *Contraction*, as with *Ruta graveolens*.⁹
6. Cerebral Depression and Spinal Irritation = *Dilatation*, as with *Cicuta virosa*,¹⁰ Nicotine,¹¹ Hydrocyanic acid,¹² *Digitalis purpurea*.¹³

The actions of the two nervous supplies for the iris may be regarded as antagonistic. When, therefore, the influence of one set of fibres is removed, that of the other will be unchecked, and will produce a greater degree of its proper action. Thus, when the influence of the spinal supply is removed from the iris, the muscles which are acted on by the cerebral nerves will be unrestrained, and contraction of the pupil will result, in the same way as a direct irritation of these (cerebral) nerves would act.

We can thus refer the action of the bean of the *Physostigma venenosum* to the spinal cord. The contraction of the pupils may be caused in three ways: positively, by cerebral irritation; negatively, by spinal depression; and, complexly, by a combination of

¹ The pupils are generally *contracted* in cases of poisoning by opium; they have, however, been observed *dilated*. The symptoms of cerebral irritation are very obscure, but I think that the mental excitement which follows a dose of opium must be regarded as an indication of such irritation. I would suggest that when the pupils have been observed *dilated*, an almost complete suspension of cerebral activity had been produced with more or less spinal irritation. See Christison "On Poisons," p. 709: 1845. It has also been observed, that although at the commencement the pupils may be contracted, as the stupor increases they gradually dilate. Taylor's "Med. Jurisprudence," p. 183: 1861.

² Christison, op. cit. p. 835. Taylor "On Poisons," p. 771.

³ Christison, op. cit. p. 865.

⁴ Christison, op. cit. p. 745. Taylor, op. cit. p. 722.

⁵ Christison, op. cit. p. 951. Taylor, op. cit. p. 729.

⁶ Christison, op. cit. p. 880.

⁷ Christison, op. cit. p. 896. It has been observed that during the convulsive paroxysm the dilatation increases. Taylor, op. cit. p. 207. Brit. and Foreign Medico-Chirurgical Review, vol. lviii. p. 536. In some experiments on rabbits, I have distinctly observed this change on the pupils (see Experiment 25).

⁸ Alex. Fleming, M.D., "An Inquiry into the Physiological and Medicinal Properties of the Aconitum Napellus." 1845: pp. 11 and 21. Christison, op. cit. p. 869.

⁹ Christison, op. cit. p. 891. ¹⁰ Christison, op. cit. p. 861.

¹¹ Christison, op. cit. p. 849. Nelligan, *Materia Med.*, p. 354.

¹² Christison, op. cit. p. 765. Taylor, op. cit. p. 653.

¹³ Christison, op. cit. p. 889.

cerebral irritation and spinal depression. The symptoms disprove any cerebral irritative action, so neither the first nor last of these can be regarded as the cause of the contraction. On the other hand, they distinctly indicate a depressing action on the spinal cord; by this action the power of the cord to transmit impressions is destroyed, and, necessarily, the power of transmitting the nervous influence to the iris. The balance between the dilator and contractor muscles is thus removed by the nervous supply of the dilator being stopped; the circular fibres act, and the pupil is *contracted*.

In a few experiments it was observed that, sometime after the contraction of the pupils had commenced, if the animal was excited to muscular exertion, as in struggling when irritated, the pupils very distinctly *dilated* (Experiment 25).

An extension of these views may be of importance in the analysis of the symptoms produced by every poisonous agent, and perhaps also in the diagnosis of diseases, as in the localized affections of the nervous system.

The bean has been shown to produce death in two ways, either by *asphyxia* or by *syncope*; but from the special action of this agent on the cardiac muscle, it is extremely probable that the results are complicated by the *special* weakness of the heart's action.¹

The cases of death by *syncope* are very characteristic (Experiments 3, 6, 11, 14, 15, 26).

The cases of death by *asphyxia* are equally so (Experiments 1, 2, 5, 7, 8, 10, 16).

Death commenced at the heart when large doses were given, and at the lungs when a more moderate quantity was administered.

We have seen that paralysis is the first important symptom. This commences in those muscles that are supplied by the lower part of the spinal cord, and quickly extends upwards, until the muscles of respiration are involved, and *death by asphyxia* is produced. That such is the sequence of events, we must conclude for the following reasons:—

1st, The muscular paralysis occurred invariably as a first symptom in every experiment.

2d, The appearances in an examination after death from *small* fatal doses were those which are caused by asphyxia (Experiments 1, 2, 5, 7, etc.).

3d, The heart, in this class of cases, was found contracting with considerable regularity after death. And,

4th, The pupil contracted during the continuance of the effects, which I have endeavoured to show indicates a *depressing* action on the spinal cord.

We may also arrive at the same conclusion by disproving the

¹ The late Professor Alison refers to such a complication. See "Outlines of Physiology and Pathology," p. 332: 1836.

connexion of the symptoms and appearances after death with the known phenomena of fatal results from other causes. That the action of this agent is not *primarily* exerted on the heart is very apparent in that class of cases where death followed *small* fatal doses. For,

1st, It must be evident that if the paralysis were dependent on any cessation of the necessary supply of blood from a failing of the heart's action, this symptom could not exist without marked effects being produced in other parts of the system, and more especially in the encephalon. Indeed, the functions of the brain proper would be affected even *previous* to those of the spinal cord.

2d, After moderate and even pretty large doses, the heart has been found contracting at the rate of from 50 to 60 beats in the minute in rabbits (Experiments 1, 2, 5, etc.).

This diminished action cannot be regarded as a cause of the final insensibility, as it is well known that a greater diminution may take place with scarcely any symptoms.

3d, It has been shown by various investigators, as Dr Cormack,¹ that where death is caused by a neurotic poison paralyzing the heart's action, the *respiratory movements may continue a short time after the cardiac paralysis*.

We may exclude any influence originating in the encephalon by the complete absence of any symptom which could be referred to the brain.

We therefore conclude that in certain cases this agent produces death by asphyxia.

It also occasions death, when *large* doses are given, by the symptoms of *syncope*, as has been proved by the investigation of Professor Christison.²

Dr Christison found that large doses produced languor, muscular flaccidity, and the cessation of respiration, with the preservation, as far as could be judged, of sensation and consciousness. The heart was found after death completely paralyzed, and the right and left chambers contained blood of different colours. These symptoms were also observed in my experiments, and conclusively prove that death is sometimes produced by syncope (Experiments 13, 15, 26, etc.).

If the deductions I have made in reference to a spinal action of the bean be allowed, and if the absence of mental phenomena have the import I have ascribed to it, it appears probable that this syncope is in reality caused by a rapid and energetic action of the bean on the spinal cord. It has been shown by Legallois³ and Dr Philip Wilson,⁴ that when an agent acts on the spinal cord in a partial and somewhat slow manner, it may destroy the function of the cord without influencing, or at least without directly para-

¹ "Treatise on Creosote." 1836.

² Monthly Medical Journal, vol. xx. 1855.

³ "Exp. sur le Principe de la Vie." 1812.

⁴ "Inquiry into the Laws of the Vital Functions."

lyzing, the action of the heart. On the other hand, if this action be intensified, general muscular paralysis is immediately produced, and the contractility of the heart is almost instantly destroyed. In the former case, the symptoms arise in the spinal cord, and death is produced by *asphyxia*; in the latter, the symptoms also begin in the cord, but death is produced by *syncope*.

The two varieties of symptoms following the administration of the bean may be harmonized in the same way. It exerts a special influence on the spinal cord; when this is limited in extent and energy, the only marked effect is paralysis, and death is caused by the extension of this paralysis to the muscles of respiration, causing death by *asphyxia*. When, on the other hand, this spinal action is more extensive and energetic, the heart is affected, its contractions cease, and death occurs by *syncope*.

We may therefore conclude, that the kernel or embryo of the bean of *Physostigma venenosum* has the following actions:—

1. It acts on the spinal cord by destroying its power of conducting impressions.

2. This destruction may result in two well-marked and distinct effects,—

a. In muscular paralysis, extending gradually to the respiratory apparatus and producing death by *asphyxia*.

b. In a rapid paralysis of the heart, probably due to the extension of this action to the sympathetic system, thus causing death by *syncope*.

3. A difference in dose accompanies this difference in effect.

4. This action does not extend to the brain proper *pari passu* with the action on the spinal cord. The functions of the brain may, however, be influenced secondarily.

5. It also produces paralysis of muscular fibre, striped and unstriped.

6. It acts as an excitant of the secretory system, increasing more especially the action of the alimentary mucous glands.

7. Topical effects follow the local application of various preparations; these are,—destruction of the contractility of muscular fibre, when applied to the muscles, and contraction of the pupil, when applied to the eyeball.

Smallest fatal Dose.—This varies in different animals. I have found that four grains of the powdered kernel may be swallowed by a rabbit eight months old without fatal results. Five and a half grains is the smallest dose with which I have caused death in a rabbit of this age (Experiment 8).

Modified Actions.—A general impression is said to prevail among the natives of Calabar, that the varying effects of the bean is dependent on some mode of preparation by the “fetish-men.” I have found that protracted boiling in water of the powdered kernel does not to any evident degree modify the energy of the poison (Experiment 35). It is, however, possible, from one experiment which

was performed, that subjecting the entire bean to the action of boiling water for several hours may modify its action. It appeared from this experiment that a dose of the kernel so prepared, *twice as great as will usually produce death*, occasioned a train of symptoms very nearly resembling those which have been ascribed to the spermoderm, and produced no fatal effect. The most characteristic of these symptoms was a violent cathartic action. The poison may thus be eliminated from the system, even when no vomiting is produced, and, *à fortiori*, when this physiological action has resulted. The active principle of the spermoderm appears to be absorbed by the kernel, and to exert its influence on the system by causing evacuation of the poison before a fatal action can be produced by the specific effect of the kernel. This also coincides with the details given by the various Calabar missionaries, who state that the bean is produced entire at the trial, thus considerably diminishing the chances of any tampering by mixing with other substances, but in no way opposing the previous subjection of the entire bean to such a neutralizing process.

Antagonistic Action to Strychnia.—The peculiar action of the kernel on the medulla spinalis appeared to be so directly antagonistic to that of strychnia, that it seemed desirable to discover whether the effects of the one poison might not be made to annul those of the other. For this purpose, a poisonous dose of strychnia was given to a full-grown rabbit, and when its action had been decidedly produced, a poisonous dose of the syrupy extract of the kernel was injected into the posterior flank. Almost immediately after the rigid condition of the muscles of the posterior extremities was removed, the convulsive spasms of the hind limbs disappeared, and they became perfectly flaccid. At the same time, rigidity and violent spasms alternated in the anterior extremities and anterior portions of the trunk. The animal died shortly after (Experiment 28).

It seems extremely probable that no bad consequences would result from a compound dose of strychnia and this kernel, could the exact quantities be discovered which would in each produce the same degree of their special actions. This is certainly a very great difficulty to be overcome, but it does not appear to be insurmountable.

III. *Actions on Man.*—(a.) *Constitutional.*—Our knowledge of the action of the bean on man is still in an unsatisfactory condition. The complete series of symptoms cannot be narrated with certainty, as no fatal case has been observed by persons qualified to describe the effects. This is certainly *satisfactory*, in a humane point of view, inasmuch as it implies a limit in the occurrence of fatal cases, none having taken place beyond the country where the bean is employed as an ordeal; but it is *unsatisfactory* when we confine ourselves to the scientific aspect of the question, and consider the great blank which is thus caused in our acquaintance

with the details of the effects on man. At the same time, we may arrive at some conception of these results, by considering the accounts of the symptoms in trial by ordeal, with their relations to the effects of smaller quantities on man, and comparing these with the conclusions arrived at by experiments on the lower animals.

1. *Symptoms of Trial by Ordeal*.—The symptoms in fatal cases, as described by unprofessional witnesses, may be arranged in the following sequence:—No sensation is experienced for about ten minutes after the commencement of the trial. At this time the victim becomes thirsty. This symptom gradually increases until the accused loses command of his Indian stoicism to such an extent as to struggle violently and entreat the bystanders for water. In a short time the power of swallowing is lost, mucus escapes from the mouth, convulsions and twitches are observed in the muscles of various parts, but especially of the back, and then death, generally about thirty minutes from the commencement of the trial. During the whole time of the ordeal the victim retains complete consciousness, as is shown by the absence of delirium, and the sense and appositeness of the remarks which are made. The power of speech is retained till a short time before death and after the accused is unable to swallow.

In the cases in which the ordeal is successfully undergone, nausea is produced, and is quickly followed by vomiting, when the accused is immediately declared innocent. The sickness rapidly disappears, and headache is the only symptom which persists during the remainder of the day.

2. *Small Doses on Man*.—Professor Christison has accomplished the feat of eating the largest quantity of the kernel without fatal results. This was about twelve grains. A case occurred in Glasgow, where two servant girls, perfectly unaware of the character of the seeds, ate each about five grains of the kernel of some beans which had been accidentally put within their reach. I have also taken portions varying from six to ten grains, and have administered small doses of an alcoholic tincture to various individuals. From the data thus acquired the effects of a small dose may be described as follows:—In about five minutes after the administration, a peculiar feeling is experienced in the epigastrium, immediately below the sternum. This is very slight at first, but gradually increases in intensity, till it becomes almost painful. Eructation takes place in a short time, and always occurs during an aggravation of this sensation. This continues at intervals for a considerable time, and is by and by complicated by a feeling of dyspnoea. Dizziness is soon after experienced, and in a short time a degree of powerlessness in the muscles of the extremities.

If a somewhat larger dose be taken, as in Professor Christison's experiment, twitches occur in the pectoral muscles, and the dizziness is much augmented.¹

¹ Op. cit.

I have also further experienced a dimness of vision, a supposed increase in the salivary secretion, or at least an accumulation of fluid in the mouth, whatever its source, and a marked, though slight, perspiration. At this stage attempts to walk, or even to move the limbs, are difficult, and may be unsuccessful, while at the same time consciousness is perfectly retained.

These symptoms reach a certain climax and then gradually decline, dizziness being generally the most persistent, and they almost entirely subside after a night's rest.

The heart's action is described in Dr Christison's case as becoming irregular and tumultuous. The same irregularity has been observed in some of the cases which have come under my notice; and in many, the cardiac contractions have been found to diminish in number. In one experiment, eight grains of the powdered kernel, in an hour and a half, reduced the pulse twenty beats. (Experiment 2, *Actions on Man*.)

These results agree, as far as they go, with the conclusions from experiments on the lower animals. The most marked symptom is the muscular paralysis, both of the voluntary muscles and of the heart. It is well known that important differences may exist in the actions of agents on different animals, as to the details of experiments, and as to the prominence which is given to one or more of these. This is well seen in the present instance, where the physiological action on the heart of man is, from the facilities of observation, shown with great distinctness.

The epigastric sensation was one of the first symptoms in every instance in which I have myself taken the powdered kernel, or any of its preparations, and in every case in which it was administered therapeutically. The sensation is rather peculiar, and its quality may be understood by some, by saying that it resembles the unpleasant feeling which is produced when a piece of solid food of too large a size is suddenly "bolted." It is at first very slight, and recurs at intervals, generally commencing about fifteen minutes after the administration. It is accompanied by eructations, which generally occur during the sensation, being preceded and followed by it. In one case it was produced by the external application of the tincture (Case 6, Section IV. *Therapeutics*).

General muscular weakness has in each of the experiments been mentioned as a prominent symptom. It is very difficult to discover the immediate cause of this action,—whether it be due to a change in the inherent property of muscular fibre, or in the nerves which convey the impressions which act as the direct stimulants of these fibres. The latter view appears to be the more probable, because we have found that the voluntary muscles are distinctly removed from the influence of the will, and in an order the reverse of that in which an agency could be brought in contact with these muscles by the blood,—as the paralysis of the lower precedes that of the upper extremities. We have also seen that the function of the

nerves to conduct impressions may be lost (Experiment 18), while the muscles to which these nerves are distributed retain their contractility and respond to direct irritation. And we have seen that when the extract was applied to the *external* surface of the heart, its effects were slow and transitory, whereas, when it was brought in contact with the *internal* surface, an immediate and permanent effect was produced, thereby proving that the greater opportunity to influence the nervous structure is followed by the greater effect (Experiments 19 and 20).

The sedative action on the heart may be explained in two ways,—*first*, by a direct local action on the proper contractile apparatus, whether nerve or muscle; and, *secondly*, by a nervous influence emanating from the cord,—a result of the change produced there by the bean. As we have seen that an energetic influence is exerted on the cord, and even on the spinal nerves, which are considerably removed from their origin, we are entitled to suppose that this special spinal action may affect the relative innervation of the heart. It is also probable that the smallest portions which may be circulating in the blood will exert their sedative action on the nerves distributed to the inner surface of the heart. That this latter is not the primary but a secondary action, I am inclined to believe, from the very significant fact that the muscular paralysis has been observed before any perceptible change in the radial pulsations (Experiment 3, *Actions on Man*).

In the symptoms of trial by ordeal, the whole details, and especially the occurrence of convulsions, appear to favour the view of death by asphyxia rather than by a slowly advancing syncope. It would, however, be extremely unphilosophical to speculate any further on this subject. We must await a complete account of the symptoms and appearances after death from the competent observation of fatal cases. We have only learnt that no effect has been described which appears to oppose the conclusions from an experimental investigation on the lower animals.

(b.) *Topical*.—When the extract is applied to the eyeball, it immediately causes a copious secretion of tears, and in about five minutes a distinct contraction of the pupil, confined to the side of the application. In about thirty minutes after the application the pupil becomes a mere speck, but still retains a certain degree of mobility. It continues in this state for twelve or fourteen hours, but a greater or less degree of contraction of the pupil may persist for five or six days. A slight headache and dimness of vision with myopia in the affected side, are almost always produced, but these only continue for one or two hours at the commencement (Experiment 5, *Actions on Man*). When the extract is applied to the edges and outer surface of the eyelids, there is produced, in addition to the contracted pupil, a degree of immobility of the eyelids (Experiment 6, *Actions on Man*). No effect was produced

on the pupil by friction on the temples or over the eyebrows with any preparation of the kernel.

On the Skin.—When either the tincture or extract is applied to the skin, a local action is caused, especially if a certain amount of rubbing has been employed. In about half an hour a distinct diminution in the sensibility occurs, and the skin may be pricked, very little pain only being excited (Experiment 7, *Actions on Man*).

This obtunding action is not accompanied with any irritation of the skin,—the mode of application and the nature of the preparation being sufficient to account for the slight degree of redness produced.

(*To be continued.*)

ARTICLE V.—*Description of a New Instrument for the Relief of Retention of Urine in Cases of tight Strictures of the Urethra.*

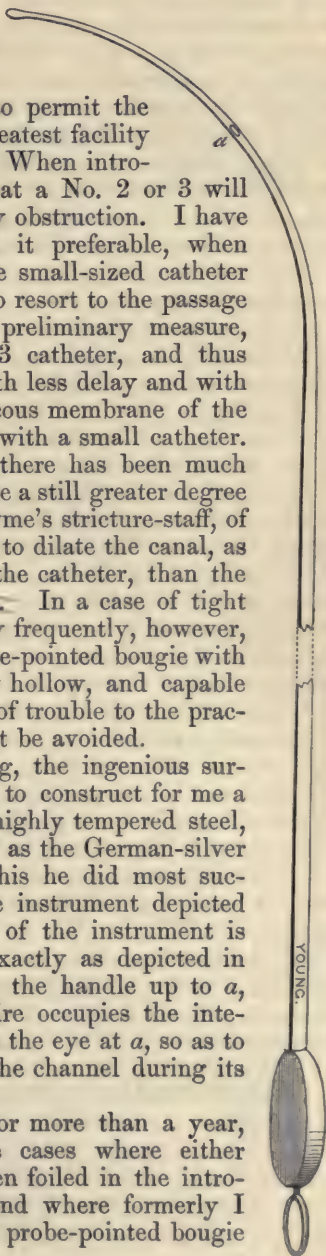
By PATRICK HERON WATSON, M.D., F.R.C.S.; Surgeon to the Royal Infirmary and Eye Infirmary; Lecturer on Surgery, Edinburgh.

To any one conversant with the success which has in recent times attended the efforts of surgeons to relieve retention, in cases of stricture, by the employment of the common silver catheter, a proposal to increase the armamentarium of surgery by the addition to it of a new instrument, may appear very uncalled for. No doubt, the silver catheter, varying in scale from the size of a fine knitting-wire upwards, is well suited in most cases to enable the practitioner to overcome the difficulties so far as the diminished capacity of the urethra at the seat of stricture is concerned; and when contrasted with the gum catheter affords a facility of manipulation to which the latter instrument cannot pretend. Rigidity of material is thus obviously a matter of moment, conferring as it does a command over the extremity of the instrument; so that delicacy of manipulation, combined with the requisite amount of power, is certainly attained. This rigidity in the case of the silver instrument is, however, only comparative, and becomes less and less as the size diminishes, till at length in the smallest catheter, No. $\frac{1}{2}$ or No. 1 of the Edinburgh scale, the condition of flexibility is almost attained. Nos. 2, 3, and 4 are certainly less pliant, but still they are less easily introduced than the more rigid bougies of the same size which are made of solid German-silver or steel. This fact has long been recognised, and has led generally to the use of bougies of those sizes in preference to catheters in the treatment of stricture by dilatation. While the advantage to be obtained by the use of a very small instrument, which possesses as great an amount of rigidity as possible, has led, in this hospital, for many years, to the employment of a probe-pointed German-silver bougie, made in its stem of the size of No. 3, but tapering at its point to an extremity not larger than

that of a common probe. Such an instrument is certainly more easily introduced into the bladder where a tight stricture exists than even a No. 1 bougie of uniform size, the tapering point enabling the instrument to be guided through the constricted portion with precision; and thus to permit the thicker part of the stem with the greatest facility to follow up the slender extremity. When introduced it dilates the stricture, so that a No. 2 or 3 will easily pass without experiencing any obstruction. I have therefore on many occasions found it preferable, when foiled in the first attempt to pass the small-sized catheter in cases of retention with stricture, to resort to the passage of the probe-pointed bougie as a preliminary measure, following it up with a No. 2 or 3 catheter, and thus securing the relief of the patient with less delay and with much less risk of injury to the mucous membrane of the urethra than by oft-repeated efforts with a small catheter. In such cases, too, especially when there has been much thickening in the perinæum, to secure a still greater degree of rigidity, I have found that Mr Syme's stricture-staff, of the smallest size, was better suited to dilate the canal, as a preliminary to the introduction of the catheter, than the probe-pointed German-silver bougie. In a case of tight stricture with retention, I have very frequently, however, felt, after having introduced this probe-pointed bougie with no little difficulty, that, were it only hollow, and capable of acting as a catheter, a great deal of trouble to the practitioner and pain to the patient might be avoided.

I accordingly requested Mr Young, the ingenious surgical-instrument maker of this city, to construct for me a probe-pointed stricture catheter of highly tempered steel, and of exactly the same dimensions as the German-silver stricture bougie in common use. This he did most successfully, and furnished me with the instrument depicted in the margin. The whole length of the instrument is $10\frac{1}{2}$ inches; its size is otherwise exactly as depicted in the cut. The stem is hollow from the handle up to *a*, where there is an orifice: a silver wire occupies the interior of the instrument, and occludes the eye at *a*, so as to prevent blood or mucus obstructing the channel during its introduction.

I have now used this instrument for more than a year, restricting its employment to those cases where either others or myself had previously been foiled in the introduction of a small-sized catheter, and where formerly I should have resorted to the use of the probe-pointed bougie



as a pioneer to the common catheter. In every such instance I have found that the steel probe-pointed catheter was introduced with facility, and afforded the requisite relief completely,—though, of course, slowly, from the small size of the channel through which the water flowed. This instrument, I may mention, has also been employed by several friends, and in their experience has been found signally serviceable. There is but one objection to the instrument; that is the liability of steel instruments to rust; and more particularly this might be expected to hold good with respect to the channel of a steel catheter. I can only say in reply, that during the period I have employed the instrument, I have had no reason to complain of it on this score. The only precaution I have thought it necessary to employ has been to wash it after use, and then to pass the silver wire dipped in oil along the channel. Should, however, the risk of rust appear to be a serious objection to its general usefulness,—as it might in a warm climate,—then the instrument may be electro-gilt, so as thoroughly to protect the steel surface.

In introducing the catheter to relieve retention, from the position of the eye of the instrument, the operator must take care that this aperture, and not merely the point of the catheter, is lodged in the bladder; else the water will come away in a very tiny and unsatisfactory stream. By passing the finger up the rectum the position of the point of the instrument can easily be determined, and when it is once in the bladder the catheter may then with perfect safety be pushed onwards, stretching the stricture by its gradually-increasing calibre till at least an inch and a half more of the stem has passed within the canal of the urethra. If the silver wire is now withdrawn, the urine will escape in a continuous free stream; and if the patient is then placed in the erect posture or sitting upon the edge of the bed, the bladder will gradually empty itself without the assistance of any pressure over the pubes.

The advantages to be obtained from the employment of this steel probe-pointed catheter are,—

1st, That in it we have an instrument which, being made of steel, is thoroughly rigid, and therefore under the control of the operator;

2d, An instrument which, to relieve retention, possesses all the excellence of the smallest catheter, with, from its probe-pointed extremity, all the facility of introduction presented by the probe-pointed bougie.

Part Second.

REVIEWS.

On Rupture, Inguinal, Crural, and Umbilical; the Anatomy, Pathology, Diagnosis, Cause, and Prevention; with new Methods of Effecting a Radical and Permanent Cure. By JOHN WOOD, F.R.C.S. Eng., etc., etc. John W. Davies: London: 1863.

HERNIA or rupture, in all its forms, has always been specially interesting to surgeons, both from the extreme frequency of its occurrence, especially among the labouring-classes, and from the grave inconveniences and still graver risks to life which its presence involves. Till within the last quarter of a century all attempts to cure rupture had been so dangerous, unscientific, and painful, and so frequently fatal, that rupture-curing had in great measure passed out of the hands of the profession into the possession of impudent itinerant quacks, who frequented fairs and assemblages of all sorts, and by various plans of castration with ligature of the sac and cord, actual cautery, or concentrated acids, gave the unfortunate patients the benefit of an operation, proportionate in its severity to the enormous fees which they extorted; the operator, in the meanwhile, escaping to a new harvest of dupes before the success or failure of the operation could be tested. The profession, with the exception of various trials of the *punctum aureum*, devoted their attention chiefly to the prevention of the occurrence of rupture, its alleviation by trusses, and the medical relief of strangulations. The principle involved in the *punctum aureum* showed a thorough appreciation of the non-irritating properties of metallic sutures, even in the days of Ambrose Paré.

Of late years, however, the subject of the radical cure of reducible hernia has been most thoroughly worked at, and great advances have been made, both in a proper appreciation of the very great difficulties to be surmounted, and in the invention of various methods of overcoming these difficulties.

The question at issue is briefly this. We have, in a hernia, the following condition:—The walls of a great cavity are at one or more points specially weak, the contained viscera have protruded, either by extension and stretching of a natural opening or by the formation of a new breach in the walls, and in protruding, they have brought with them as a covering a serous membrane, extremely extensible, highly sensitive to injury, and, when injured, certain to resent it by severe spreading and dangerous inflammation.

Do we desire to remedy this protrusion, we may act,—

1. On the intestines themselves; but, for all surgical purposes, they are out of our reach: we cannot do more than, by diminishing their contents, diminish their volume, and by position and rest

reduce to the utmost their tendency to protrude. This includes the medical and prophylactic treatment of hernia, or rather of the tendency to hernia.

2. We may try what can be done with the *sac* which the intestines have pushed down before them,—Can it be obliterated? If it can, perhaps the intestines may be retained in their cavity. Very many plans of dealing with the sac have been tried.

To cause obliteration of its cavity very many methods have been proposed;—by ligature of it along with the spermatic cord, involving loss of the testicle, either by gradual separation, by sloughing, or by immediate removal;—by cutting into it, and then stitching it up;—by constricting it with wire, as in the *punctum aureum*;—by pinching sac and coverings up, by passing needles under them as they emerge from the external ring, as Bonnet of Lyons did;—by constricting sac alone with a double wire, by subcutaneous puncture, as Dr Morton of Glasgow has done;—by severe pressure from the outside with a strong tight truss and a pad of wood, as proposed by Richter;—by setons of thread or candle-wicks, as proposed by Schuh of Vienna;—by injection of tincture of iodine or cantharides, as by Velpeau and Pancoast;—by the introduction into the sac of thin bladders of goldbeaters' skin, which were then filled with air, and were intended to excite inflammation, as in the radical cure of hydrocele;—or by the still more severe method of Langenbeck, consisting in exposing the sac by a free incision at the superficial ring, separating it from the cord, and passing a ligature round the sac alone, leaving the ligatured portion in the scrotum either to become obliterated or to slough out. Schmucker of Berlin varied this, by cutting away the constricted portion below the ligature.

The objections to these methods are various: the more gentle are uncertain and inefficient; of the more severe, some involve mutilation, by the loss or removal of the testicle; others, as those of Langenbeck and Schmucker, are very dangerous and fatal, by the inflammation spreading to the peritoneal cavity (20 to 30 per cent. died); while all of these methods produce at best only temporary relief. And this is only what might have been expected, for the sac was only a *result* of the protrusion, not a *cause*; and so long as the weakness and insufficiency of the parietes of the abdomen remain, so long will the extensible loosely-attached peritoneum continue to furnish new sacs for visceral protrusions.

3. We have now only the canal left to act upon; and the operations on the canal may be divided into two great classes:—

(a.) Those in which the operator attempts to plug up the dilated canal. (b.) Those in which he tries to constrict it, by reuniting its separated sides.

(a.) Attempts to plug the canal have, in most cases, been made by invagination of the skin of the scrotum and its fascia. These have been very numerous and various in their adaptation of mechanical

appliances, but have all been designed with the same object. Dzondi of Halle, and Jameson of Baltimore, incised lancet-shaped flaps of skin, and endeavoured to fix them by displacement over the ring. Gerdy invaginated a portion of scrotum and fascia into the enlarged canal, by the fore-finger pushed it up, and secured it in its place by a thread passed from the point of his finger, first through the invaginated skin, then through the abdominal walls, endeavouring to include the walls of the inguinal canal, causing the point of the needle to project some lines above the inguinal ring; the same process being effected with the other end of the thread on the other side of the finger, and the two ends which have been brought out near each other on the abdominal wall being tied tightly over a cylinder of plaster. The ensheathed sac was then painted with caustic ammonia, to excite inflammation, and a pad put on over all.

Signoroni modified this by fixing the invaginated skin by a piece of female catheter, retained in its place by transfixion by three harelip needles, tied by twisted sutures.

Wützer of Bonn, again, modified this, by substituting a complicated instrument, consisting of a stout plug in the inguinal canal, held in position by needles, which are passed through the anterior wall of the canal in the groin. Compression between plug and compress, with the intention of causing adhesion between skin, fascia, and sac, is then managed by means of a screw. The plug is retained for about seven days.

Modifications of this method have been tried by Wells, Rothmund, and Redfern Davies, all aiming in the direction of simplicity; but by far the most simple and efficacious method on the Wützer principle yet devised is that of Professor Syme, which he described in the pages of this Journal for May 1861, in which the invagination of integument is both simply and securely managed by strong threads, as in Gerdy's method, while a piece of bougie or gutta-percha, to which the threads are fixed, replaces Wützer's expensive and complicated apparatus.

Mr Pritchard of Bristol has proposed an additional step in operations on the invagination principle, consisting in the stripping of a thin slip of integuments from the orifice of the cutaneous canal, and then putting a pin through the parts to get them to unite, and thus close the aperture completely.

Now, what results follow these operations? At first they are almost invariably successful, but the complaint is that sooner or later the rupture, in most cases, recurs. The principle is to plug up the passage by the mechanical presence of the invaginated skin, the plug being retained in position by adhesive inflammation between it and the edges of the dilated ring. But the ring is left dilated, or, indeed, generally its dilatation is increased; and as, on continued pressure from within, the new adhesions give way, or, as often happens, a new protrusion takes place in the circular cul-de-sac necessarily left all round the apex of the invagination, the still

lax ring and canal offer no resistance to the protrusion. Such is the reasoning, and so far it is a sound one, on which Mr Wood goes in his advocacy of another plan of treatment of the canal in reducible hernia.

(b.) The principle of constriction of the canal by reuniting its separated sides. It is this principle of treatment variously modified for the cure of inguinal, crural, and umbilical hernia which forms the original and valuable contents of the book now under review; the portion relating to the radical cure of inguinal hernia having, in the form of an essay, obtained the Jacksonian prize for 1861, of the Royal College of Surgeons of London.

The first section contains a short and accurate account of the anatomy of the parts of inguinal hernia, as clear as words *can* make it, yet for all didactic purposes perfectly useless, unless as a mere adjunct to the scalpel and the finger. On the causation of hernia, Mr Wood disposes of the idea that mesenteric deviations have anything to do with it, but justly lays the whole blame on the inefficiency of the tendinous or muscular containing walls.

In an excellent account of the varieties of inguinal hernia, there is a specially valuable notice of the anatomy of the absurdly named bubonocoele, and also of the important practical differences in the shape and position of the external ring in oblique and direct hernia respectively. In a series of diagrams, Mr Wood shows the different shapes of the sac usually met with, with special reference to the point of strangulation, by injecting plaster-of-Paris from within on the dead subject.

The author gives a very interesting description of the bodily conformation and muscular development of the different classes of patients who are the subjects of inguinal hernia, with the bearing of such conformation, both on their liability to hernia, and their suitableness for the radical cure. He makes three varieties, the muscular, the wiry, and sinewy, whose tendons and fascia are specially developed; and those with a special tendency to the development of fat, with ill-developed pelvis, and retention of foetal peculiarities in groin and spermatic apparatus. After an account of the diagnosis, he gives a brief outline of some of the methods of radical cure, specially those of Wüitzer (whose name Mr Wood invariably spells Würtzer, for which change in orthography we can find no authority) and Gerdy, with his objections to them.

We then have an account of his own operations, the one by ligature, thread, and compress, described in the forty-third volume of the Medico-Chirurgical Transactions of London in 1860, and then the improved one by wire, which is intelligibly described, though the description is too long for quotation here.

The principle of it is "to effect compression and closure of the tendinous sides of the hernial canal in its entire length," by subcutaneous stitches of wire, thus exciting only adhesive inflammation without injury to the cord, and, if possible, which it

generally is in small recent cases, without interference with the hernial sac.

The wire is to be untwisted about the eighth or tenth day, and removed on the fourteenth.

The next sections are devoted to variations on the wire operation for special cases, and to an account of the operation by rectangular pins, which the author considers suitable in the congenital herniæ of children, and other kinds in children and young boys.

The chapter on *Results* is very interesting. Of 60 cases recorded in the appendix, only one died, and eleven were unsuccessful. The death was the result of pyæmia on the third week after the operation; the veins of the vesical plexus were dilated and hypertrophied; the tissues were indurated and contained thick pus.

"Of the 42 cases put down as successful, ten have not been heard of since they left the hospital cured. The rest have either been seen (and many exhibited in public from time to time), or have been heard of by the author. All the patients were earnestly enjoined, and promised to communicate directly with the author in case of any change in the condition of the parts operated on. Some of the cases present a slight degree of bulging opposite the internal ring, which results from the tenuity of the abdominal wall at that part. These might possibly have been improved by a higher position given to the outer point of suture. Such a weakness of the groin is, however, commonly met with in persons not actually affected by rupture, as we have before seen. . . . The total result of the cases given in the appendix yields, without reckoning the doubtful and imperfect cases, and with a fair allowance for future casualties and imperfect records, the encouraging proportion of 65 to 70 *per cent. of successful cases*. And this, it must be borne in mind, is drawn from cases that have been taken entirely *without selection*, and as presented, good and bad, direct and oblique. Many of them of a very aggravated kind, some of enormous size, and treated by operative measures, some of which were more or less tentative."

This is certainly a most satisfactory result, for some of the cases have been operated on for so long a time as to prove the permanence of the improvement. The patient first operated on, who was one of those exhibited to the Medico-Chirurgical Society in February 1860, has been doing very heavy lifting work, without a truss, up to a recent period, nearly five years after the operation.

The sections on crural and umbilical hernia include both anatomy, pathology, and treatment for radical cure. From the comparative rarity of suitable cases, Mr Wood has had no experience of the radical cure of crural hernia on the living subject, though he has devised and practised on the dead subject an operation similar in principle to that for inguinal hernia. He has had a limited number of cases of umbilical rupture, treated by needle and wires on the same principle, though for such protrusions in the

adult, the method successfully employed by Dr P. H. Watson, as described in this Journal for September 1862, seems to be superior in some of its details.

The chapters on trusses, attached to the description of each variety of hernia, are admirably sensible, and suggest important practical improvements.

The numerous illustrations, especially those illustrative of the position of the stitches, and the fastening of the wires, greatly assist in the right understanding of the various processes.

The whole work is a most valuable addition to surgical literature; and the author's forthcoming work on the Surgical Anatomy of the Pelvis and Perinæum will be looked for with interest.

The publisher has done his part of the work thoroughly well, both as regards typography and material.

Chemistry. By WM. THOMAS BRANDÉ, D.C.L., F.R.S.L. and E., of Her Majesty's Mint, etc., etc.; and ALFRED SWAINE TAYLOR, M.D., F.R.S., Professor of Chemistry and Medical Jurisprudence in Guy's Hospital. London: John W. Davies: 1863.

IN consequence of the ever-increasing necessity for an acquaintance with the principles and practice of chemistry experienced by those engaged in arts, manufactures, and medicine, and of the rapid advances made by chemistry itself, no subject is provided with a more copious literature. We have "introductions," "elements," and "treatises" of all sizes, from the modest "First Step" of ninety pages, to the formidable "Handbook" of Gmelin, which, though still unfinished, already extends to fourteen volumes and eight thousand pages. Nevertheless, there is abundance of room for the volume before us, which will supply a want which has been often felt. The more trustworthy treatises on chemistry have generally gone too deeply into the principles of the science for the ordinary student, and have embarrassed him with the difficulties of notation before he was in a position to grapple with them. It has been the object of the authors of the present volume "not to furnish a treatise on the science, but to provide the student and general reader with a plain introduction to the subject . . . a selection of the more important facts and doctrines of modern chemistry." The names of the authors, both well known as scientific chemists,—the one devoted more especially to the industrial applications, the other to the medico-legal bearings of chemistry,—would be of themselves a sufficient guarantee of the mode in which this intention has been carried out; but, after a careful examination of their performance, we are bound to say that our expectations have been more than realized. We know of no work in which the facts of chemistry are more clearly expressed; where there is throughout a better-marked practical tendency, which adapts it particularly to

the student; where attention is less distracted by doubtful or controversial matter.

The first seventy pages deal, so far as space permits, with the principles of chemistry, under the heads of the properties of matter, crystallization, chemical affinity, and equivalent weights and volumes. The second section treats of the metalloids, the third of the metals, while the fourth gives an excellent statement of the present position and the best ascertained facts of organic chemistry. Finally, there is an appendix, which contains some very useful matter, tables for the conversion of various scales of weights and measures, and degrees of temperature into one another, and for the determination of specific gravities.

As a specimen of the style of the authors, we subjoin an extract from their account of Prismatic or Spectrum Analysis:—

"Chemists have for many years relied upon the colours given by the salts of various metals, to the colourless flames of alcohol, or coal-gas, as a useful aid to qualitative analysis. MM. Kirchoff and Bunsen, by their recent researches on the coloured flames of metals, have arrived at an entirely new method, which, they assert, not only enlarges the scope of chemical reactions, but points to the solution of problems hitherto considered unapproachable by science. This method consists in not merely relying upon the colour imparted to the flame, but in decomposing the coloured light by a prism; in other words, in submitting the coloured flame to a minute prismatic analysis. Their observations have been hitherto chiefly directed to the detection of the metals of the alkalies and alkaline earths. They have employed pure salts of these metals, as well as various mixtures of them, and they have found that the more volatile the metallic compound on which they operated, the brighter was the spectrum which they obtained. A high temperature was generally required: a coal-gas flame of a Bunsen's burner, of which the heat was estimated at 2350°C. , was found to be sufficient for the alkaline metals, and the colourless nature of this flame rendered it otherwise well adapted for the spectrallytic observations. The alkaline salt in minute quantity was placed on the end of a fine platinum wire (bent into a hook and flattened, if for a solution), and this was introduced into the lower part of the colourless coal-gas flame. The light of the coloured flame was then made to traverse a prism of sulphide of carbon, having a refracting angle of 60° ; and as it issued from the prism it was examined by a small telescope.

"The reader will find a description of this apparatus, and of the method of employing it, in the *Philosophical Magazine* for August 1860, page 91; but it has been since superseded by more convenient instruments. The coloured flame of each metal, even in the minutest quantities, was found to give a well-marked and characteristic spectrum. Compared with the spectrum of solar light, the actual amount of coloured light was very small, and this was distributed without any kind of order, in a series of bands or stripes of different widths and intensities, the bands of colour taking up the situation of the corresponding spectral colours. Sodium was observed to give a single or a double line of yellow light, only in a position corresponding to the orange rays of the solar spectrum. Potassium, besides a more diffused spectrum, gave a red line in the extreme red rays, and a violet line in the extreme violet rays. Lithium gave a dark spectrum, with only two bright lines, one a pale yellow corresponding to the yellow rays, and the other a bright red corresponding to the red rays. Strontium, barium, and calcium, the only three alkaline earthy metals which give spectra (magnesium not being volatile in this flame), are remarkable for the number and variety of the coloured bands which they present. Strontium presents eight characteristic lines,—six red in the part corresponding to the red rays, one broad orange band parallel to the orange rays,

and at some distance from these a blue line, in the situation of the blue rays. The spectra of barium and calcium are distinguished from the others by the number of green bands which they present. Two of these in the situation of the green rays characterize barium. There are, besides these, three other green bands, and several yellow, orange, and red lines. Calcium presents one broad green band in the situation of the yellow-green rays; and a bright orange band near the red rays, besides several smaller orange lines. The new alkaline metal *Cæsium* (*cæsius*, sky colour), discovered by Bunsen in the waters of Durkheim and Baden, as well as in most spring-waters containing chloride of sodium, presents two distinct greyish-blue lines in the parallel of the blue rays, and no other coloured bands or lines. The other new metal, *Rubidium*, found by Bunsen in the waters of Hallein and Gastein, derives its name from the two splendid red lines in its spectrum: these are of a low degree of refrangibility. The optical characters of the spectra are constant for each metal, and are equally well marked in size and position under all varieties of flame, even of that given by the electric discharge.

"Bunsen estimated that the amount of sodium which admitted of detection by prismatic analysis was the 195,000,000th part of a grain; of lithium the 70,000,000th; of potassium the 60,000th; of barium the same; of strontium the 1,000,000th; and of calcium the 100,000,000th of a grain!

"The delicacy of the sodium reaction accounts for the fact that all bodies, after a lengthened exposure to atmospheric air, show, when heated, the sodium line. Even ignited air and all kinds of dust show the yellow tinge of sodium. Fine platinum wire or foil, however clean, if exposed to air for a short time, has been observed to give a yellow colour to flame, owing, as it is supposed, to the deposit upon its surface of sodium derived from the atmosphere. Three-fourths of the earth's surface are covered with sea-water, and the minutely diffused chloride of sodium may, it is supposed, be thus spread through the whole of the atmosphere. Lithium, which was supposed to be a rare metal, also appears by this mode of analysis to be very widely distributed. Bunsen found it in about an ounce and a half of the waters of the Atlantic Ocean; in the ashes of kelp from Scotland; the ashes of tobacco, of vine-leaves, and of plants growing on various soils. It was found in the milk of animals fed upon these crops, and it was detected by Dr Polwaczny in the ash of human blood and muscular tissue. It has also been discovered in Thames-water. It is a curious fact that the intermixture of these alkaline metallic compounds does not materially interfere with the optical as it does with the common steps of a chemical analysis. Thus, a drop of sea-water shows at first a sodium-spectrum; after the volatilization of the chloride of sodium,—a calcium-spectrum appears, which is made more distinct by moistening the platinum wire with hydrochloric acid. By treating the evaporated residue of sea-water with sulphuric acid and alcohol, potassium and lithium spectra are obtained. The strontium reaction is best procured by digesting the boiler-crust of sea-going steamers in hydrochloric acid, and employing alcohol as a solvent. By this process of analysis most mineral waters are found to contain all the alkalies and alkaline earths excepting the compounds of barium."—P. 50-53.

In conclusion, we can cordially recommend this work as one of the clearest and most practical which can be put into the hands of the student.

On the Cure of Clubfoot without Cutting Tendons. By RICHARD BARWELL, F.R.C.S., Assistant-Surgeon, Charing-Cross Hospital, etc. London: Churchill and Sons: 1863.

Ne quid nimis is a good rule, and applicable to surgical theories as well as to other things. Mr Barwell would do well to attend to

it a little, and not to stretch either his theory or practice beyond what is right and fitting.

The principles of treatment laid down in this little work are, to a certain extent, novel, and the mechanical means adopted are original and ingenious, and in certain cases of deformity have proved, in the author's hands, apparently of extreme value, and may prove, in the hands of others, valuable additions to the surgical armamentarium, in certain cases; but the great fault of this book is the one—not at all uncommon in inventors and enthusiasts—of supposing that a theory which will explain certain exceptional cases, and the treatment which has cured them, must be the theory and treatment for all, or for most similar lesions.

First, for the theory, "There can be no doubt that paralysis is very much more frequently the cause of clubfoot than the opposite condition; indeed, my opinion, deduced from careful study of many cases, is, that spasm very rarely produced talipes," that "Paralysis affecting one set of muscles produces deformity in the opposite direction." Thus, healthy muscles are always in a certain state of tonic contraction, and one set being paralyzed, the opposite ones shorten, determine changes of form, and produce deformity. Such paralyzes occurring before puberty are, as a rule, curable, unless organic disease exists; but such is the mischief the tonic contraction of the unparalyzed set has done, that the paralyzed muscles are even after being cured unable by themselves to recover their proper shape, and require assistance.

The practice founded on this is to assist the paralyzed sets by indiarubber springs of various strengths, the insertions of these extra muscles being represented by pieces of strapping.

Now this theory requires us to grant the existence of intra-uterine paralysis of some standing in the infinitely numerous cases of congenital double clubfoot, and of this disease we rarely see any local evidence in the well-nourished, chubby, little red legs so often seen in clubfoot; and after we have granted this, the practice requires to believe that the paralysis is cured—not by exercise, not by stimulating the affected groups of muscles, but by relieving them of labour by artificial aids, the very means which would tend to reduce previously healthy muscles to weakness and paralysis.

Mr Barwell's principle of treatment, which is carefully and elaborately described in the book, seems, however, well adapted for cases of paralysis of childhood, in which the limbs are dragged, a tendency to inversion exists, and there is a laxity and flattening of the whole foot. In such cases, the indiarubber springs correct the displacement, while they do not, like the rigid devices composed of wood, iron, and leather, prevent the muscles from acting during walking, which exercise Mr Barwell wisely allows and encourages. And that in reality it is to cases of this nature that Mr Barwell *has* applied his treatment is evident from his recorded cases, for out of eleven cases of clubfoot (Cases 3-13, inclusive), seven are non-con-

genital, several of them the results of convulsions, and some depending on overwork in weak constitutions; while another, though congenital, was in a lad of ten years of age, in whom "the toes turned sometimes a little out when the foot was set down; but as a rule, they are turned much inwards, altogether the gait is most uncertain, and the foot swings very loose at the end of the leg."

In this case, perhaps, unfortunately for the poor lad, the son of a medical man, the "*nimia diligentia*" had cut his tendons, placed his limbs in irons, and confined him to bed; and the indiarubber springs and sticking-plaster, allowing as they do of exercise in the open air, effected a certain improvement.

Another case, aged fourteen months, had a congenital varus of the highest degree, and in this Mr Barwell gave chloroform and overcame the resistance offered by what he rather vaguely calls the resistant power, not by cutting tendons, but "by a quick, firm, though by no means violent movement of the right hand, which overcame this resistance with a slight sound, and he then put up the foot and limb in a gutta-percha splint." Not unlike the ordinary treatment in the northern metropolis, where also we use gutta-percha splints, and *overcome resistance by cutting the tendons*.

The methods of applying the springs and plasters are exceedingly ingenious, and do great credit to Mr Barwell's mechanical skill; but we cannot understand the rationale of the very numerous and severe, almost contemptuous, allusions to orthopædism, orthopædists, etc. (see pp. 25, 27, 143, etc.). Etymologically, tenotomy and gutta-percha applied to the treatment of deformities of the lower extremities, are no more orthopædism than sticking-plaster and indiarubber. The term may be an absurd one,—it is not necessarily a term of reproach.

Part Third.

MEDICAL NEWS.

GENERAL COUNCIL OF MEDICAL EDUCATION AND REGISTRATION.

MINUTES OF MEETING, Monday, 25th May 1863.

ROYAL COLLEGE OF PHYSICIANS, LONDON.

Mr GREEN, President, took the chair at two o'clock.

Present—Dr BUIROWS, Mr ARNOTT, Mr COOPER, Dr ACLAND, Dr BOND, Dr EMBLETON, Dr STORRAR, Dr ALEXANDER WOOD, Dr ANDREW WOOD, Mr SYME, Dr THOMSON, Dr A. SMITH, Mr HARGRAVE, Dr LEET, Dr APJOHN, Dr CORRIGAN, Sir CHARLES HASTINGS, Dr SHARPEY, Mr TEALE, Dr CHRISTISON, Dr STOKES. Dr FRANCIS HAWKINS, *Registrar*.

Mr WATT, in consequence of long-continued indisposition, has resigned his position as a member of the Council for the Faculty of Physicians and Surgeons of Glasgow. Dr JOHN GIBSON FLEMING, having been elected in his stead, was introduced to the Council by Dr THOMSON.

The following Committees were reappointed,—namely, the “Business;” the “Finance;” the Committee appointed “to consider Special Claims for Registration;” the Committee on “Amendments of the Medical Acts;” the Committee appointed “to revise the Standing Orders of the Council;” and the Committee appointed in 1862 “to consider and report upon the Returns of the Number and Names of Candidates who have passed their respective Final Examinations, and the Number of those who have been rejected, which have been received in compliance with the 23d recommendation of the Medical Council, and also the Returns received in compliance with the 16th recommendation.”

Moved by Dr Andrew Wood, and seconded by Dr Alexander Wood,—“That reporters be admitted to the meetings of the General Medical Council.”

First amendment.—Moved by Dr Thomson, and seconded by Dr Stokes,—“That a committee be appointed to draw up and lay before the Council, for its consideration, a plan for the publication of such an authorized report of the proceedings of the Council as may appear desirable.”

Second amendment.—Moved by Sir Charles Hastings, and seconded by Mr Syme,—“That in all cases in which the General Council have to exercise their functions as a Court of Judicature, relative to the admission of persons on, or rejection of them from, the Register, reporters from the press be admitted.”

Question put to the vote,—“That the original motion be amended.”—Negatived.

Dr Andrew Wood required that the names of the majority and minority should be entered on the minutes.

Majority.—The President, Mr Arnott, Mr Cooper, Dr Alexander Wood, Dr Andrew Wood, Dr Fleming, Mr Syme, Mr Hargrave, Dr Leet, Dr Apjohn, Dr Corrigan, Mr Teale.

Minority.—Dr Burrows, Dr Acland, Dr Bond, Dr Embleton, Dr Storrar, Dr Thomson, Dr A. Smith, Sir Charles Hastings, Dr Sharpey, Dr Christison, Dr Stokes.

The original motion, “That reporters for the press be admitted to the meetings of the General Council,” was then put, and negatived.

Dr Andrew Wood required that the names of the majority and minority should be entered on the minutes.

Majority.—The President, Dr Burrows, Mr Arnott, Dr Acland, Dr Bond, Dr Embleton, Dr Storrar, Dr Thomson, Dr A. Smith, Dr Sharpey, Mr Teale, Dr Christison.

Minority.—Mr Cooper, Dr Alexander Wood, Dr Andrew Wood, Dr Fleming, Mr Syme, Mr Hargrave, Dr Leet, Dr Apjohn, Dr Corrigan, Sir Charles Hastings, Dr Stokes.

Read the following letter from the Home Office:—

“Whitehall, 19th May 1863.

“SIR,—With reference to your letter of the 6th inst., I am directed by Secretary Sir George Grey to inform you that the Lords Commissioners of the Treasury approve of the distribution of two thousand copies of the Medical Register, published by the Council of Medical Education and Registration, to certain public offices, at a cost not exceeding £300 per annum.—I am, Sir, your obedient servant, H. WADDINGTON.

“Joseph Henry Green, Esq., etc.”

A committee was appointed to consider the publication and distribution of the Register.

A committee was appointed to consider and report on the applications from foreign or colonial colleges and universities for the recognition of their degrees or examinations.

The memorial of the Manchester Medico-Ethical Association, respecting amendment of the Medical Acts, was referred to the Medical Acts Amendment Committee.

The President was requested to propose to the Council, during its present session, a design for the common seal.

MINUTES OF MEETING, Tuesday, 26th May.

Mr Green, President, took the chair at two o'clock.

The Solicitor, Mr Ouvry, stated the case of John Lacey (referred to the General Council by the Branch Council for England), who has applied to be registered as a Licentiate of the Society of Apothecaries of London.

1. Moved by Sir Charles Hastings, seconded by Dr Burrows, and carried,—“It appearing to the Council that John Lacey has obtained the license of the Society of Apothecaries, London, on statements similar to those on which he was originally

registered, and in respect of which his name was erased from the Register, on the ground that the entry had been fraudulently or incorrectly made, the Council decline to register the said John Lacey on a qualification thus obtained; but, inasmuch as said John Lacey has not been heard, the question is remitted to the Branch Council for England, with power to reconsider and decide the same, after hearing the said John Lacey, if he shall desire to be heard."

2. Moved and carried,—“That a copy of the above resolution be forwarded to the Society of Apothecaries of London.”

An application made by Mr Richard Organ to the Society of Apothecaries, to be examined for their license, having been referred by that body to the General Council,

3. Moved by Dr Alexander Wood, seconded by Mr Teale, and agreed to,—“That the Court of Apothecaries be informed that the name of Richard Organ was erased from the Medical Register on the ground that he had endeavoured to procure a license from Edinburgh by personation. The Council therefore recommend that the Society of Apothecaries should not admit Mr Organ to be examined.”

Read a petition from Mr John Kearney of Clonmany, county Derry, for the reinsertion in the Register of his name, and of his qualification from the Faculty of the Physicians and Surgeons of Glasgow, which had been erased in 1861, by order of the General Council, under the 29th section of the Medical Act.

4. Moved by Dr A. Smith, seconded by Dr A. Thomson, and agreed to,—“That the Council cannot comply with the prayer of Mr Kearney's petition.

Read an application from Mr John Potter Sargeant, for the restoration to the Register of his name, which had been omitted from it, under the 14th section of the Medical Act.

5. Moved by Sir Charles Hastings, seconded by Mr Lawrence, and agreed to,—“That the Council having considered the application of Mr John Potter Sargeant, to have his name restored to the Medical Register, decline to accede to it, unless Mr Sargeant shall furnish to the Executive Committee satisfactory evidence of character. That the Council delegate to the Executive Committee the duty of inquiring into and deciding on the case, having regard to the requirement of the Council.”

Read, the following letter from the Royal College of Surgeons of England:—

“Royal College of Surgeons of England, London, 8th May 1863.

SIR,—I am desired to acquaint you that the Council of this College have removed Mr Robert Jacob Jordan, of George Street, Hanover Square, from being a member of this College.—I am, Sir, your obedient servant, EDMUND BELFOUR, *Secretary*.

“Dr Francis Hawkins, Registrar, General Medical Council.”

6. Moved by Mr Arnott, seconded by Mr Lawrence, and agreed to,—“That the Registrar be directed to erase from the Register the qualification of Mr Robert Jacob Jordan as a Member of the Royal College of Surgeons of England.”

The Council then took up the case of Samuel La'Mert, referred to them by the Branch Council for England on the 17th April 1863.

Mr Ouvry read a petition, and a statement with the evidence in support of it, from the Royal College of Physicians of Edinburgh, praying that the name of Samuel La'Mert, a registered medical practitioner, be removed from the Register.

Mr Ouvry read also the notice served personally on Samuel La'Mert, summoning him to attend the Council.

Mr Ouvry read also a written statement submitted by Samuel La'Mert in answer to the statement.

7. Moved by Dr Alexander Wood, seconded by Dr Acland, and agreed to,—“That it has been proved to the satisfaction of the Council, that Samuel La'Mert, a registered medical practitioner, has been guilty of infamous conduct in a professional respect: 1. In publishing, or causing to be published, an indecent and unprofessional treatise, entitled, ‘Self-Preservation: a Popular Treatise on the Cure of Nervous and Physical Debility, Spermatorrhœa, Impotence, and Sterility, resulting from the Secret Habits of Youth, the Excesses of Mature Age, and the Debilitating Effects of Tropical Climates.’ 2. In having falsely pretended, both on the title-page of the said treatise and by advertisements in the public newspapers, that his son, Lima Abraham La'Mert, a Licentiate of the Royal College of Physicians of Edinburgh, was a joint author and publisher of the said treatise. That the name of the said Samuel La'Mert be erased from the Medical Register, and the Council hereby direct the Registrar to erase the same accordingly.”

8. Moved by Dr Storrar, seconded by Dr Sharpey, and agreed to,—“That it be referred to a committee to consider and report whether any and what steps should be taken by the Council, in relation to the retirement and election of its members, in view of the expiration of the term of five years from its constitution.”

Dr Christison read a report from Dr Garrod, the Secretary of the Pharmacopœia Committee.

9. Moved by Dr Sharpey, seconded by Dr Storrar, and agreed to,—“That the Report of the Pharmacopœia Committee be received and printed in the Minutes.”

Report of the British Pharmacopœia Committee.

25th May 1863.

The Pharmacopœia Committee begs to submit the following report of the progress made towards the publication of the “British Pharmacopœia,” since the meeting of the General Medical Council in May 1862.

It will be remembered that, at the above meeting, the manuscript of the “British Pharmacopœia” was laid before the Council almost complete, and was then approved of by that body; but it was found that the printing of the work could not at once be proceeded with, from the fact that the Council did not at that time possess the necessary qualification for holding a copyright; and, moreover, from the wording of the Medical Act of 1858 not giving the legal power of superseding, by the forthcoming Pharmacopœia, the existing Pharmacopœias of the London, Edinburgh, and Dublin Colleges of Physicians, the General Council deputed to its Executive Committee the task of endeavouring to obtain a Supplementary Act granting the necessary powers, which was accomplished at the end of the last parliamentary session.

Shortly before this period, when it became publicly known that the Pharmacopœia Committee had, in the manuscript of the “British Pharmacopœia,” made a considerable alteration in the weights to be employed in pharmacy, and, among other changes, that the troy grain was proposed to be discarded, and a new grain substituted for it,—a grain which would bear the same relation to the avoirdupois ounce as the troy grain does to the apothecaries’ or troy ounce,—many objections were raised and remonstrances made to the Executive Committee,—amongst others, one by the Royal College of Physicians of London, protesting strongly against such a change of weights; and it was thought advisable by the Executive Committee that a special meeting of the Medical Council should be summoned, that the matter might be definitely and satisfactorily dealt with. This meeting was held in October last.

After this, the Pharmacopœia Committee made the alterations in the manuscript rendered necessary by the changes in the weights. The Executive Committee at once commenced arrangements for the printing of the work; making contracts with the printers previously selected by the Pharmacopœia Committee, and approving the specimen pages of typography fixed on by the same Committee at its conference at Edinburgh. The three editors, one chosen by each Branch Pharmacopœia Committee, also commenced their task. But some little delay occurred at the outset, from the discovery that the approved specimen pages, although well adapted for portions of the work, were not in all respects suited for the whole; and, with the consent of the Executive Committee, certain alterations were made in the typography of the first part of the Pharmacopœia. Since this time the printing of the volume has steadily progressed, and the Committee has now the satisfaction of laying before the Council proof sheets of the whole Pharmacopœia, with the exception of the preface and appendix. The manuscript of the former is complete, while the latter only awaits the corrections in the body of the work before being put into type, which could be readily accomplished in a few days.

As this may be the last report which the Pharmacopœia Committee will have to make, it may be advisable to point out to the Medical Council the amount of time and labour which has been devoted to the accomplishment of the work.

The Pharmacopœia Committee naturally separated into three branch committees,—one in London, a second in Edinburgh, and a third in Dublin; and each commenced its sittings in December 1858. From that period to the present, the number of sittings and attendances of each branch has been as follows:—The London committee has held 158 meetings, and the number of attendances of its members has been 567; the Edinburgh committee has held 108 meetings, and the number of attendances has been 657; the Dublin committee has held 141 meetings, and the number of attendances has been 627: making a total of 407 meetings, and 1851 attendances. These numbers are exclusive of the two conferences of delegates, held in London and Edinburgh.

The Financial Statement of the Pharmacopœia Committee, since the accounts were audited in May 1862, is contained in the following table:—

Financial Report of the Pharmacopœia Committee.

To balance in hand on audit of accounts, 19th May 1862,	£128	13	0
To Amount voted by the General Medical Council, 21st May 1862,	600	0	0
	£728	13	9
London delegates at Edinburgh,	£195	6	0
Dublin delegates at Edinburgh,	192	3	0
Edinburgh delegates at Edinburgh,	110	5	0
Mr Warrington, Chemist to London and Edinburgh Committees,	105	0	0
Edinburgh Secretary,	0	13	4
Dublin Secretary,	2	0	7
London Secretary and General Secretary,	2	15	0
Mr Glover, for attendance on Pharmacopœia Committee at Soho Square,	10	10	0
	£618	12	11

Leaving a balance of £110, 0s. 10d. in the hands of the General Secretary.

The number of meetings and attendances given in the present report may probably appear very large; but it must be remembered that, in accomplishing the task of publishing a National Pharmacopœia, the Medical Council will have accomplished what has long been looked upon as a great desideratum, but which has hitherto frustrated the efforts of the three Colleges of Physicians of the United Kingdom; and in order to effect this, it was necessary to have a committee composed of several members of Council from each division of the kingdom, and also to associate with them gentlemen from different learned bodies, specially conversant with the subjects.

As but little is now required before going to press, besides the correction of the proofs and the completion of the appendix, the Pharmacopœia Committee can confidently predict that the National Pharmacopœia will be published not later than October next.

A. B. GARROD, M.D., F.R.S.,
Secretary to the Pharmacopœia Committee.

MINUTES OF MEETING, Wednesday, 27th May.

Mr Green, President, took the chair at two o'clock.

The minutes of the last meeting were read and confirmed.

Moved by Dr Bond, seconded by Dr Stokes, and agreed to,—“That a committee be appointed to take into consideration, and to report (during the present meeting) what further steps it is desirable for the Council to take in reference to the British Pharmacopœia.”

Read the following letter from the Royal College of Surgeons of England:—

“Royal College of Surgeons of England, 4th May 1863.

“SIR,—I am desired to acquaint you, for the information of the General Council of Medical Education and Registration, that the Council of this College, on the 13th June last, appointed a committee to consider ‘whether any, and, if so, what alterations it would be proper to make in the regulations of this Council relating to the education and examination of candidates for the diploma of Member of this College, so as to bring them more in accordance with the recommendations of the General Medical Council in reference to general and professional education.’ That this committee addressed letters to the Fellows and Members of the College holding appointments in the hospitals, infirmaries, and other charitable institutions of England and Wales, and to those engaged in large general practice, in order to ascertain what opportunities are available throughout the country for practical instruction in medicine and surgery, and what is their opinion on the best mode of commencing professional education. The whole subject of the College regulations was examined carefully at repeated meetings of the committee and of the Council. As the circumstances of those who intend to adopt the medical profession, and the opportunities of instruction within their reach, are extremely various, the Council are of opinion that the course of education cannot be subjected to any absolute and inflexible rule without great disadvantage, and even much unnecessary hardship in particular cases.

"In the opinion of the Council, the leading principle in the education of those whose life will be devoted to the treatment of accidents and diseases should be to make it as practical as possible, especially at its outset. The minor duties of surgery, especially in the manipulative department, and the usual course of injuries, diseases, and their treatment, can be understood in great measure without previous theoretic training; they are matters of great interest in themselves, calculated to excite and keep up the attention of the student, and to make him feel the advantage, or rather the necessity, of that clearer insight which is to be derived subsequently from scientific teaching in the schools. He thus becomes acquainted with those ordinary duties of his profession with which he will be principally occupied from the very commencement of his active career, although, in plain truth, they cannot be learned in a great school. The Council would think favourably of the arrangement, if the early portion of the medical education could be carried on at home, under the influence of domestic life and associations, or in the house of a competent master, so that the danger of sending an inexperienced youth into the world without guidance, and especially into a great metropolitan medical school, should be reduced to the smallest possible amount.

"The Council, therefore, are of opinion that an option should be left to parents and guardians as to the time and manner in which that portion of study not spent in medical schools should be employed, and accordingly propose to continue their regulations on the subject. They have, at the same time, introduced modifications into their rules, calculated to provide against irregularities and abuses, and to ensure the continued and efficient prosecution of the studies now required. Copies of the regulations, as thus amended, are herewith enclosed.—I have the honour to be, Sir, your obedient servant,

EDMUND BELFOUR, *Secretary.*

"Joseph Henry Green, Esq.," etc.

Moved by Dr Storror, seconded by Mr Hargrave, and agreed to,—*"That the letter of the Royal College of Surgeons of England now read be received, printed in the minutes, and referred to the Education Committee."*

Read, the following letter from the President of the Royal College of Surgeons of Edinburgh:—

"To the President of the General Medical Council.

"Royal College of Surgeons, Edinburgh, 19th May 1863.

"SIR,—I am directed by the Royal College of Surgeons of Edinburgh, over which I have the honour to preside, to bring under the notice of the General Medical Council, at its ensuing meeting, the position in which the College has been placed by the proceedings of the General Medical Council.

"The College adopted the whole of the recommendations issued yearly by the General Medical Council. It did so in the trust that other licensing bodies would likewise do so, and in the faith that, if they did not, the General Medical Council would not fail to endeavour to compel them to do so. I refer more especially to two of the most important of the recommendations issued by the General Council. 1. That, after September 1861, the Preliminary Examination in General Education be passed previous to the commencement of professional study. 2. That the commencement of professional study be understood to be the time of commencing study in a medical school.

"After due notice given to intending students of the approaching changes, this College acted on these recommendations, and accordingly no student, beginning after September 1861, was allowed to register as a student of medicine during session 1861–2, who had not passed the whole of the Preliminary Examination in General Education. In this course the College had the co-operation of the Royal College of Physicians of Edinburgh and the Faculty of Physicians and Surgeons of Glasgow, by both of which bodies the same regulation was announced and carried out. This recommendation, however, was not adopted or carried out by other bodies conferring qualifications in Scotland (I refer to the Scottish Universities), the regulations of which require the Preliminary Examination in General Education to be passed before the commencement of professional study only 'as far as possible.' Again, the recommendation defining the commencement of professional study to be by attendance at a medical school has not been adopted by the Royal College of Surgeons of England, which recognises attendance at an hospital or dispensary, or pupillage with a surgeon, as modes of commencing professional study equally with attendance at a medical school; and the fact of that College having issued such regulations contrary and

subsequent to the recommendations of the General Medical Council, was prominently brought before the Council at its meeting in May 1862. The Council, however, took no steps to enforce the adoption of its recommendations by the bodies whose regulations were not in accordance with them, and even refused to pass a vote of disapproval of the course pursued by a body which had issued regulations contrary to the recommendations of the General Council. By this course of procedure on the part of the Council, this College was placed in a very difficult position, and has reason to complain of having been led on by the Council to adopt regulations, in the endeavour to carry out which it has been deserted by the Council itself.

"I need hardly say that it is in vain for one licensing body to endeavour to carry out a regulation requiring the Examination in General Education to be passed before the commencement of professional study, if the doors of other bodies are open without such a condition; or for one College of Surgeons to define the commencement of professional study to be only attendance at a medical school, so long as another recognises apprenticeship as one of the modes of constituting such commencement. In consequence, therefore, of the failure of the Medical Council to support the College in its endeavour to carry out the recommendations of the Council, the College has been compelled to suspend the operation of the regulations in question. This the College has done, by attaching to sect. 1, chap. iii., to sect. 2, chap. iv., and to sect. 3, chap. v. of its printed regulations, issued in August 1862, a foot-note, intimating that, 'in consequence of the proceedings of the General Medical Council in May 1862, this regulation will not take effect until further notice.' This course was adopted by the College after a conference with the Royal College of Physicians of Edinburgh and the Faculty of Physicians and Surgeons of Glasgow, held to consider the position in which the Colleges and Faculty were placed by the above-mentioned proceedings of the Council.

"In regard to requiring the Examination in General Education to be passed before commencing attendance at a medical school, the College, without expressing any opinion upon the merits of the question, is ready to enforce such a regulation, in the event of all the Colleges, Universities, and other licensing bodies engaging to do the same, from and after a certain date, and in such a manner as shall leave no room for doubt.

"In regard to professional study, the College has avoided ambiguity by simply fixing the number of sessions of attendance at a regularly constituted medical school as not less than four winter sessions, or the alternative of three winter and two summer sessions; and I have to suggest to you that, by adopting a similar formula, the Council would avoid the difficulty which, as experience has shown, arises from the use of a phrase so ambiguous and so liable to evasion as that of 'professional study.'

"I may be permitted to add, that the proceedings of the Medical Council above referred to have occasioned not only embarrassment to the College, but disappointment of the hopes entertained in the College of an improvement in medical education through the influence of the Council. Unless the Council will confine its recommendations as distinguished from the mere expression of what it considers desirable) to what it is able to enforce, and will show its intention to enforce them without fail or delay, on any of the bodies which shall have failed to adopt them at the specified time, it is obvious that the influence of the Medical Council for good to the profession must be seriously impaired.—I remain, Sir, your obedient servant,

"P. NEWBIGGING, *President*."

Moved by Dr Storrar, seconded by Dr Sharpey, and agreed to.—"That the letter of the President of the Royal College of Surgeons of Edinburgh now read be received, printed on the minutes, and referred to the Education Committee."

Read, a letter addressed to Dr Burrows, by the Registrar of the Royal College of Physicians of London:—

"Royal College of Physicians, London, 23d May 1863.

"DEAR SIR,—I am directed to state, for the information of the Medical Council, that this College has passed a bylaw (March 1863) providing for the appointment of an additional Examiner in Surgery. After June, therefore, the examinations on the subjects of professional education will be conducted by two examiners in anatomy and physiology; two examiners in chemistry, materia medica, and practical pharmacy; two examiners in the principles and practice of medicine; two examiners in the principles and practice of surgery; two examiners in midwifery and the diseases peculiar to women.

"I am also further directed to inform you that the College has passed the follow-

ing regulations:—That the University of Athens be added to the other universities already qualifying candidates for admission to the examination of this College. That the testamur of having passed the examination in Arts at Codrington College, Barbadoes, be accepted in lieu of the examination on the subjects of general education, conducted by the examiners of this College. That the certificate of the second class in Literature and Science of the Cape of Good Hope should be accepted in lieu of the examination conducted in the College before the admission of students to professional studies.—I am, dear Sir, yours faithfully, HENRY A. PITMAN, *Registrar*.

“George Burrows, M.D.,” etc. etc.

Moved by Dr Andrew Wood, seconded by Mr Hargrave, and agreed to,—“That the letter from the Registrar of the Royal College of Physicians of London to Dr Burrows be received, printed on the minutes, and referred to the Education Committee.”

Read, the following letter from the Director-general of the Army Medical Department:—

“Army Medical Department, 14th March 1863.

“SIR,—I have the honour to forward the enclosed correspondence from the College of Surgeons of Ireland, by which it will be seen that ‘the Council of this College has granted diplomas to its Fellows and Licentiates, testifying that they are qualified to practise medicine as well as surgery,’ and to inform you that, having submitted the same to the Right Hon. the Secretary of State for War, together with your reply to my letter of the 12th ult., stating that you have no authority to answer the question as to whether the holder of the license of the Royal College of Surgeons in Ireland, registered as such, is qualified to practise medicine as well as surgery, I have been directed by Sir George Lewis to refer this question to the General Council of Medical Education, and have therefore to request you will be pleased to submit the same to the next meeting of the General Council, and to favour me with their reply.—I have the honour to be, Sir, your most obedient, humble servant,

“The Registrar, General Council of Medical Education.” J. B. GIBSON, *Director-gen.*

Moved by Mr Hargrave, and seconded by Mr Syme,—“That the licentiates of the Royal College of Surgeons in Ireland, registered as such, are qualified to practise both medicine and surgery, in accordance with the powers of the Medical Act.”

The debate on this motion was adjourned.

MINUTES OF MEETING, Thursday, 28th May.

The adjourned debate was resumed on Mr Hargrave's motion.

Question put and carried,—“That Mr Syme be allowed to withdraw his name as second of the foregoing motion.”

Moved by Dr Corrigan, and seconded by Dr Smith,—“That the Registrar be directed to forward the following reply, with the documents referred to, to the Director-general of the Army Medical Department:—

“‘SIR,—I am directed by the General Council of Medical Education and Registration, in reply to the inquiry in your letter of 14th March 1863, “whether licentiates of the Royal College of Surgeons, registered as such, are qualified to practise medicine as well as surgery,” to inform you that a similar question has been already before the General Council, having been submitted to them by the Poor-law Board of England, in a communication of 5th August 1859, and the reply of the General Medical Council will be found in the minutes of the meeting of General Council of 10th August 1859, a copy of which is herewith sent.

“‘The General Council, in explaining in that minute the nature of the qualifications or licenses really granted by the several licensing bodies, enumerated the Royal College of Surgeons in Ireland among the bodies authorized to grant only a license or diploma in surgery.

“‘The Royal College of Surgeons of Ireland raised the question again before the Poor-law Board of Ireland in October 1862.

“‘The Poor-law Commissioners of Ireland referred the matter to the law officers of the crown—the Attorney-general and the Solicitor-general for Ireland.

“‘The following is their opinion:—“After perusing and considering the charters of the College of Surgeons, we are of opinion that it has not the power, and is not competent to grant a diploma or degree in medicine.”

"A copy of the opinion is herewith sent. The correspondence at length between the Poor-law Commissioners of Ireland and the Royal College of Surgeons of Ireland will be found in the Annual Report (16th) of the Poor-law Commissioners for Ireland, dated 21st March 1863.

"If the opinion of the law officers of the crown of Ireland be correct, the Royal College of Surgeons of Ireland has not power, and is not competent to grant a diploma or degree in medicine."

Amendment moved by Dr Storrar, and seconded by Dr Sharpey,—"That the Director-general of the Army Medical Department be respectfully informed that the question, whether the licentiates of the Royal College of Surgeons of Ireland are qualified to practise both medicine and surgery, is one of legal interpretation, on which the Council declines to pronounce an opinion."

The amendment was put, and negatived.

The original motion was then put, and carried.

Dr Andrew Wood required that the majority and minority on the original motion be entered on the minutes.

Majority.—Dr Burrows, Dr Bond, Dr Embleton, Dr Alexander Wood, Dr Andrew Wood, Dr A. Smith, Dr Apjohn, Dr Corrigan, Sir Charles Hastings, Mr Teale, Dr Stokes.

Minority.—Dr Acland, Dr Storrar, Dr Thomson, Mr Hargrave, Dr Sharpey.

Moved by Dr Corrigan, seconded by Dr A. Smith, and agreed to,—"That the Report of the Committee of the King and Queen's College of Physicians in Ireland, on the recommendation of the General Council relative to Preliminary and Professional Education (see p. 646), be printed in the minutes."

Read, the following memorial from the Company of the Apothecaries' Hall of Dublin:—

To the General Council of Medical Education and Registration of the United Kingdom.

The Memorial of the Company of the Apothecaries' Hall of Dublin,

SHEWETH.—That by Royal Warrant for the regulation of Medical Officers of the Army, bearing date the 1st of October 1858, and issued subsequently to the passing of the Medical Act, it is required that every candidate for the Army Medical Service, before being allowed to present himself at the competitive examination, should, in addition to a diploma in Surgery, "produce a qualification in Medicine, or a license to practise it from one of the Colleges or bodies legally authorized to grant a certificate to that effect, or that qualifies a civilian to practise medicine" in Great Britain or Ireland.

That the late Director-General of the Army Medical Department, and the late Secretary of State for War, signified their intention to recognise the License of the Company of the Apothecaries' Hall of Dublin, as being one of the bodies enumerated in Schedule A of the Medical Act, as "a certificate that qualifies a civilian to practise Medicine" referred to in the Warrant.

That the Medical Council, by raising doubts as to the sufficiency of the qualification granted by the Company, have prevented this recognition taking effect, and have thereby entailed obloquy and injury upon the Company and their Licentiates.

That the Company have left no means untried to satisfy the Council of the power of the Company to grant a license, such as entitles its owner to practise Medicine, as well as of their licentiates being both "*de facto* and *de jure*" medical practitioners; and in evidence thereof the Company have laid before the Council legal opinions by the highest authorities both in England and Ireland: to wit, the Right Honourable Joseph Napier, late Attorney-General of Ireland, who states: "That, on a full consideration of the statutes and authorities (English and Irish) I am of opinion that the legal rights and privileges of the Irish apothecary are not inferior to those of the English. That in the course of a considerable experience I have never known these rights or privileges doubted, or made a question in Courts: several proceedings have taken place in later years to put down ignorant and unskilful persons who practised *though unlicensed*, but the general rights of the licensed apothecary have not been, nor, as I conceive, could they have been properly questioned." And the Right Honourable Sir Richard Bethel, late Attorney-General of England, who, with the Irish Apothecaries' Act, the Medical Act, the Royal Warrant, and the objections of the Medical Council before him, states: "I have not the least doubt, therefore, of the Company of Apothecaries in Ireland being a body legally qualified and empowered

to grant licenses to *practise medicine*, or of its licentiates being *regularly qualified medical practitioners* within the true meaning and intent of 'the Medical Registration Act.' There can be no doubt of the right of existing and future licentiates of the Apothecaries' Hall, Dublin, to be registered under that Act, and when registered as such licentiates to *practise medicine*; the fact of being registered under the Medical Act is such a certificate as justifies a civilian to *practise medicine*; and every person so registered *has a good title to present himself at the competitive examination.*"

That the Company are induced thus briefly to restate their case, and from it to make another appeal to the General Council, with a hope that they will be led to see that it is a matter, not of favour, but of simple justice, to recognise the license of the Company as "a qualification in medicine," and that having accepted the course of study and examination to be gone through in order to obtain this qualification, and having finally admitted the licentiates of the Apothecaries' Hall of Ireland to the Medical Register, the Council cannot judiciously deny to them the title which is common to all other persons similarly circumstanced, to present themselves at the competitive examination for the appointment of assistant-surgeon in Her Majesty's service. Signed, on behalf of the Apothecaries' Company of Dublin,

Apothecaries' Hall of Dublin, 25th October 1862.

JEROME O'FLAHERTY.

Moved by Dr Storrar, seconded by Dr Alexander Wood, and agreed to,—“That the memorial from the Apothecaries' Company, Dublin, be received and printed in the minutes.”

Moved by Dr Leet, and seconded by Dr Syme,—“That the General Medical Council, having by their resolution of the 9th August 1859, declared 'that the license of the Apothecaries' Hall of Ireland is not equivalent to a degree from a university or college authorized to grant such;' and that this resolution being at variance with the provisions of the Medical Act, which does not recognise any difference in the qualifications of registered practitioners, as regards the right of practice, further than as those qualifications refer to medicine or surgery; that this Council now declare that the licentiates of the Apothecaries' Hall of Ireland are admitted to registration as practitioners in medicine.”

The debate on this motion was adjourned.

MINUTES OF MEETING, Friday, 29th May.

The minutes of the last meeting were read and confirmed.

The Finance Committee presented their report, from which it appeared the income of the Council for 1862 was £4661; the expenditure, £4822. The estimated income for 1863, £4793; estimated expenditure, £4183.

The committee also append the following statement of the actual and prospective expense of the publication of the Register, under the reduced charge for printing, and the arrangement that 2000 copies in sheets are to be purchased for circulation by her Majesty's Government.

750 copies of the Medical Register for 1862 cost	£439	5	7
Total receipts for sale of ditto	85	2	0
Loss in 1862	£354	3	7
750 copies of the Medical Register for 1863, under the new estimate (see General Minutes, No. 38, p. 2, and No. 42, p. 5, and Executive Committee Minutes, No. 37, p. 2), cost	£325	15	10
2000 copies in sheets to be circulated by Government	168	0	0
	£493	15	10
Probable produce by sale of the Medical Register for 1863, say	£30	0	0
By sale of 2000 to the Government	250	0	0
	330	0	0
Loss in 1863	£163	15	10
In future years the cost of 2500 copies of the Medical Register will be about	£475	0	0
And the produce of the sale about	330	0	0
Leaving a deficiency of about	£145	0	0

TABLE of the Regulations of the Bodies mentioned in Schedule A to the Medical Act, relative to Education and Examination, showing their conformity or non-conformity with the Recommendations of the Medical Council.

—	Examination in General Education (Including Latin) before Commencement of Professional Studies. (Recommendations 1 and 5.)	Commencement of Professional Studies to be at a Medical School. (Recommendation 2.)	Four Years at least of Professional Studies required. (Recom. 18.)	Professional Examinations to be divided into at least two parts; the First to take place after Two Years, the Second after Four Years of Study. (Recommendation 10.)	Twenty-one to be the earliest age for a Licence. (Recom. 17.)	Candidates to sign Statement that they have not been rejected within Three Months. (Recommendation 34.)
Royal College of Physicians, London.	Conformable.	Conformable.	Conformable.	<i>For Licentiate.</i> First Examination after termination of Second Winter Session of study at a recognised Medical School; the Second after at least 18 months from First Examination. Not conformable as regards Members. First Examination after the termina- tion of the Second Winter Session of attendance at a recognised School; the Second after the termination of the fourth year of Professional Education. First Examination not conformable.	Conformable.	Conformable.
Royal College of Surgeons of England.	Conformable.	Attendance on Lectures or Hospital Practice, or Registered Pupillage, considered as commencement of Professional Studies. Not Conformable.	Conformable.	First Examination after Second Summer Session; the Second after Fourth Summer Session. Conformable. Generally conformable. Not conformable.	Conformable.	Not noticed.
Society of Apothecaries, London.	Conformable.	Conformable.	Conformable.	Conformable.	Conformable.	Not noticed.
University of Oxford.	Conformable.	Not conformable.	Conformable.	Conformable.	Not stated. Not conformable. Practically in conformity, but no such regulation has been framed.	Not required.
University of Cambridge.	Conformable.	Conformable.	Conformable.	Conformable.	Conformable.	Not required. All Students have, in fact, been required to do so by the Examiners; but no formal regulation has been made.
Univ. of Durham. University of London.	Conformable. Conformable.	Conformable. Conformable.	Conformable. Conformable.	Conformable. Conformable.	Conformable.	Not noticed. Not noticed, but implied.
Royal College of Physicians of Edinburgh.	Not conformable. Preliminary Examination before admission to the Professional Examination.	Doubtful.	Conformable.	Not conformable. Professional Examinations conducted either as a whole or in parts. In case of Students, always in two parts, but no distinction of intervals of two years.	Conformable.	Not noticed.

Royal College of Surgeons, Edinburgh.	Not conformable. In consequence of the proceedings of the General Council in May, 1862, these recommendations will not be complied with until further notice.	Not conformable. For the foregoing reason, postponed.	4 years, to include not less than 4 Winter Sessions, or 3 Winter Sess., & 2 Sum. Sess. Postponed for the foregoing reason.	First Examination not sooner than the end of the Second Winter Session; the Second not before the termination of the Winter Session of the last year of study.	Conformable.	Not noticed.
Faculty of Physicians & Surgeons, Glasgow. Univ. of Aberdeen.	The same as preceding. Conformable.	The same as preceding. Conformable.	The same as preceding.	The same as preceding. Three Professional Examinations; the First after 2d year's study; the Second after 3d year's study; the Third after 4th year's study. Candidates may, if they choose, be admitted to Examination on the first two of these divisions at the end of their 3d year, or to three Examinations at the end of their 4th year. Not conformable. The same as above. Not conformable.	Conformable. Conformable.	Not noticed. Not noticed.
Univ. of Edinburgh.	Examination in General Education, as far as possible, prior to the commencement of Medical Study. Exceptions extremely few. Practice conformable. The same as preceding.	Conformable.	Conformable.	The same as above. Not conformable. Not conformable.	Conformable.	Not noticed.
Univ. of Glasgow.	The same as preceding.	Conformable.	Conformable.	The same as above.	Conformable.	Not noticed.
Univ. of St. Andrews.	The same as preceding.	Conformable.	Conformable.	The same as above.	Conformable.	Not noticed.
King and Queen's College of Physicians, Ireland.	Examination in General Education previous to or within the first two years of Professional Study.	Conformable.	Conformable.	Students recommended to divide their course of study into two periods of two years each. The Examination is divided into two parts. Students may be examined in the subjects of the first part at termination of first period of study, or in all the subjects of their Education on completion of their Medical Studies.	Conformable.	Not required.
Royal College of Surgeons, Ireland.	Conformable, but Regulation suspended.	Conformable.	Conformable.	Conformable as to division of the Examinations, but First Examination after three years', and the Second after four years' study.	Conformable.	Conformable.
Apothecaries' Hall, Dublin.	Conformable.	The Practice conformable, but the Regulation not explicitly stated.	Conformable.	The Examination divided into two parts. First Examination may be at the close of the 2d Winter Session; the Second not before the completion of the 4th Winter Session.	Conformable.	Not required. A question as to this is put verbally to the Candidate before examination.
University of Dublin. Queen's University in Ireland.	Candidates recommended to pass the Matriculation Examination prior to entering on the second period of Professional Studies.	Conformable. Conformable.	Conformable. Conformable.	The First Examination may be passed at the termination of the first period of Curriculum, extending over two years; or at any subsequent period or simultaneously with the Degree Examination.	Not stated. Not stated.	Not noticed. Not required.

On the motion of Dr Embleton, the Council resolved itself into a Committee on Education.

Dr Embleton laid before the Council a corrected tabular statement, showing the conformity or non-conformity of the regulations of the bodies in Schedule A with the recommendations of the Medical Council, and the reasons for non-conformity given by the respective bodies.

Moved by Dr Embleton, seconded by Dr Stokes, and agreed to,—“That the corrected tabular statement, showing the conformity or non-conformity of the regulations of the bodies in Schedule A with the recommendations of the Medical Council, be received and printed in the minutes.”

Moved by Dr Andrew Wood, and seconded by Mr Syme,—“That inasmuch as the regulations of the Royal College of Surgeons of England do not require the commencement of medical study to be at a medical school, they are not in accordance with the recommendations of the Medical Council, and are not such as to secure the possession of the requisite knowledge and skill for the efficient practice of surgery.”

The debate on this motion was adjourned.

MINUTES OF MEETING, *Saturday, 30th May.*

Moved by Dr Alexander Wood, seconded by Dr Fleming, and agreed to,—“That, whereas the Poor-law Commissioners of Ireland require that every candidate for medical employment under them shall produce a license in Midwifery, in addition to licenses in Medicine and Surgery, it be remitted to a committee to consider whether such a requirement is legal, and whether the Council should take any steps in regard to it.”

A committee was appointed.

The adjourned debate was resumed on Dr Andrew Wood's motion, viz. :—“That inasmuch as the regulations of the Royal College of Surgeons of England do not require the commencement of medical study to be at a medical school, they are not in accordance with the recommendations of the Medical Council, and are not such as to secure the possession of the requisite knowledge and skill for the efficient practice of surgery.”

First amendment.—Moved by Dr Apjohn, and seconded by Dr A. Smith,—“That this Council do submit a case to her Majesty's Attorney-General and Solicitor-General, with the view of ascertaining whether, under the provisions of the Medical Act, this Council possesses the power of issuing regulations in relation to the general and professional education of medical students, the enforcement of which will be mandatory upon the different licensing bodies enumerated in Schedule A of said Act.”

Second amendment.—Moved by Mr Hargrave, seconded by Dr Corrigan,—“That the second recommendation of the Report on Education be reconsidered, viz. :—That the time for commencing professional studies shall be understood to be the time of commencing studies at a medical school, and that no qualifying body be held to have complied with the recommendation of the Council which shall allow the examination in general education to be passed after the commencement of professional study.”

Question put to the vote and carried.—“That the original motion be amended.”

Dr Andrew Wood required the majority and minority to be entered on the minutes.

Majority.—Mr Arnott, Mr Cooper, Dr Acland, Dr Bond, Dr Embleton, Dr A. Smith, Mr Hargrave, Dr Apjohn, Dr Corrigan, Mr Lawrence, Mr Teale, Dr Stokes.

Minority.—Dr Storrar, Dr Alexander Wood, Dr Andrew Wood, Dr Fleming, Mr Syme, Dr Thomson, Dr Leet, Sir C. Hastings, Dr Sharpey, Dr Christison.

Second amendment put, and negatived.

Dr Andrew Wood required that the majority and minority be entered on the minutes.

Majority.—Dr Storrar, Dr Alexander Wood, Dr Andrew Wood, Dr Fleming, Mr Syme, Dr Thomson, Dr Leet, Dr Apjohn, Sir Charles Hastings, Dr Sharpey, Mr Teale, Dr Stokes.

Minority.—Mr Arnott, Mr Cooper, Dr Acland, Dr Bond, Dr Embleton, Dr A. Smith, Mr Hargrave, Dr Corrigan, Mr Lawrence, Dr Christison.

First amendment put, and negatived.

Dr Andrew Wood required that the majority and minority be entered on the minutes.

Majority.—Dr Embleton, Dr Storrar, Dr Alexander Wood, Dr Andrew Wood, Dr Fleming, Mr Syme, Dr Thomson, Mr Hargrave, Dr Leet, Dr Corrigan, Sir Charles Hastings, Dr Sharpey, Dr Christison.

Minority.—Mr Arnott, Dr Acland, Dr Bond, Dr A. Smith, Dr Apjohn, Mr Lawrence, Mr Teale, Dr Stokes.

The original motion was then put and negatived.

Dr Andrew Wood required that the majority and minority be entered on the minutes.

Majority.—Mr Arnott, Mr Cooper, Dr Acland, Dr Bond, Dr Embleton, Dr A. Smith, Mr Hargrave, Dr Corrigan, Mr Lawrence, Mr Teale, Dr Stokes.

Minority.—Dr Storrar, Dr Alex. Wood, Dr Andrew Wood, Dr Fleming, Mr Syme, Dr Thomson, Dr Leet, Sir Charles Hastings, Dr Sharpey, Dr Christison.

Moved by Mr Teale, seconded by Dr Stokes, and agreed to,—“That the Medical Council, whilst appreciating the great value of the practical opportunities afforded to the student who is a pupil of a regular member of the profession holding the appointment of surgeon to an hospital, general dispensary, or union workhouse; and whilst considering that a year spent in such pupilage might be regarded as one of the four years of professional study recommended by the Council, is of opinion that such year of pupilage, apart from the practical and systematic study of the elementary and ancillary sciences of medicine, should not be conducted during the first year, but at some period during the subsequent years of professional study.”

Moved by Dr Andrew Wood, and seconded by Dr Embleton,—“That all students pass an examination in general education, if possible, before they commence their professional studies.—That students may in particular cases be registered for the first time who have passed only a part of their examination in general education, but that that examination must in all cases have been completed previously to the commencement of the second winter session.”

Motion negatived.

(*To be continued in next Number.*)

MEDICO-CHIRURGICAL SOCIETY OF EDINBURGH.

SESSION XLII.—MEETING IX.

3d June 1863.—JAMES SPENCE, Esq., *President*, in the Chair.

I. NEW JOINT FORMED AFTER EXCISION OF ELBOW-JOINT.

Mr Spence showed an example of the joint formed after excision of the elbow. The patient, a woman, had been operated on many years ago by Mr Spence, and had lately died suddenly. The body had been examined by two medical friends, who were not aware that the woman had been a patient of Mr Spence, but who, seeing that the joint had been excised, removed portions of the bones and sent them to him. The preparation was a good example of the formation of a new joint. The ends of the bones were tipped with fibrous tissue almost resembling cartilage, and were enclosed in a membrane resembling a synovial sac.

II. DISEASE OF ELBOW-JOINT.

Mr Spence showed a preparation of the elbow-joint which he had lately excised on account of disease. The case had gone on favourably.

III. ABSCESS IN OS CALCIS.

Mr Spence showed an example of this not very common form of disease. There was an abscess in the interior of the bone, with necrosis at some points. The patient had suffered from severe pain, and was becoming exhausted. Suppuration was gradually advancing to the surface, and Mr Spence amputated at the ankle-joint. The preparation showed less disease than is usually met with in connexion with this operation: the joint itself was healthy, the morbid action being entirely confined to the os calcis.

IV. NECROSIS AFTER AMPUTATION.

Mr Spence showed a preparation which was interesting on account of the great extent to which necrosis had gone after amputation. A patient was brought to the hospital having sustained a severe injury of the arm by machinery, which necessitated amputation very high up. The case seemed to go on well, and the wound healed with the exception of a small point which remained open. Mr Spence hoped that there was only a little molecular necrosis; but on introducing a probe, dead bone was felt; the opening was enlarged, and the seques-

trum got hold of: instead, however, of their being only a small bit of dead bone, nearly the whole of the shaft was brought away. Of course, this had been surrounded and replaced by new bone, still this was about the most extensive necrosis of the humerus after amputation which Mr Spence had ever seen.

V. DISEASE OF THE TESTICLE.

Mr Spence exhibited a specimen of the testicle, which he had removed that day. The patient had been admitted with enlargement of the testicle, which he ascribed to a blow received seven or eight months before, and for which he had been under treatment, but with no benefit. The growth was evidently chiefly solid; and although the man's health was pretty good, still, in consequence of his anxious appearance, the irregular hardness of the posterior part of the testicle and the epididymis, and the elastic feeling in front, Mr Spence determined to remove the gland. The operation had accordingly been performed; and, on cutting into the testicle, while part of the growth was evidently inflammatory, and part contained cysts filled with a glairy matter, some portions evidently consisted of medullary matter. There could, therefore, be little doubt as to the unfavourable character of the growth.

VI. TUMOUR ARISING FROM SPHENOID BONE.

Mr Spence showed a preparation, interesting both from the formidable nature of the disease and from the fatal termination of the case. Mr Spence had first seen the patient, a boy, three or four years ago. At that time he suffered from bleeding at the nose, and difficulty of breathing; there was a large swelling of the cheek, and the eyeball was everted, and pushed outwards and upwards. A polypoid growth, which bled very readily, projected from the nostril. On looking into the mouth, a polypoid growth was seen behind the soft palate, and could be felt in the pharynx. At that time, and as the tumour had grown very rapidly, Mr Spence considered it malignant, and declined to interfere. He had seen this boy at intervals during the last three or four years; and lately, as the disease had not progressed rapidly, he began to think that it would be possible to remove it. Mr Spence was quite aware that the posterior attachments might make it impossible to remove the whole growth; but, as the patient was becoming gradually exhausted, it was evident that if any operative interference was to be tried, it must be employed soon. Accordingly, the danger of the operation and the possibility of the disease not being entirely removed were explained to the patient, but he decided on submitting to the operation. The first part of the operation was readily performed; the upper jaw was removed, and with it a portion of the tumour with very little hæmorrhage, the bleeding vessels being secured as cut through. It was, however, found that the tumour had a broad base, arising from the whole of the basilar portion of the sphenoid bone as far as the pterygoid plate on each side. Portions of the growth were removed with but little bleeding; but the boy suddenly turned faint, stimulants were administered, he was removed to the ward, but never rallied, and soon sank. Previously to the operation, danger had been anticipated from hæmorrhage, but that had not been realized. Death occurred principally from exhaustion, combined with the effect of the chloroform administered, although the inhalation had been given up some time before he became faint. The tumour was attached to the mucous membrane of the antrum at one point, but arose almost entirely from the sphenoid. At the post mortem examination, evulsion of the growth was attempted, but could not be effected, as its attachments were so firm; it was found to have gone into the sphenoidal sinus, and in removing it part of the bone was torn away.

VII. THE CERVIX UTERI IN PREGNANCY.

Dr Matthews Duncan exhibited a dissection of the cervix uteri of a woman who died in the eighth month of pregnancy. She came into the Royal Infirmary labouring under typhus fever, and was under the care of Dr Warburton Begbie,

to whom Dr D. was indebted for the valued opportunity of examining the uterus in the post-mortem inspection. The length of the cervix was about an inch. Its external extremity, marked by an irregular row of Nabothian follicles, could be easily seen; and its internal extremity, contiguous with the rapidly expanding smooth internal surface of the body of the uterus, was also distinct. The whole cervix was hypertrophied and softened, and this remark applied also to the arbor vitæ, of which the anterior and posterior columns were strongly projected. One fact was worth a cartload of arguments; and this very plain demonstration ought to convince obstetricians who still adhere to the old opinions, that the ordinary description of the cervix uteri becoming developed in the latter half of pregnancy, so as to contribute largely to the size of the cavity of the organ, was untrue, and that the view of Stoltz, which Dr D. had always taught and defended, was the true physiology of the part,—namely, that the cervix remained undeveloped till a short time before parturition. The course of the uterine artery, as it approaches the cervix and the anatomy of the broad ligaments in pregnancy, confirmed Dr Duncan's view. He might add, that Dr H. S. Wilson, well known as an able micrographer, had, at his request, examined the internal surface of the body of the uterus, microscopically, after detaching the chorion from it, and he had found no denudation of the muscular fibres, but the surface formed of a layer, detachable in an early stage of putridity, composed of decidual structures, especially of fusiform nucleated cells, which seemed to be less fusiform in shape and rounder the nearer they were to the chorion.

Dr Warburton Begbie stated, that the patient had been admitted under his care suffering from typhus fever, and had died in the thirteenth day of that disease. Not only had the advanced stage of pregnancy rendered the prognosis unfavourable, but there was an additional complication in the existence of insufficiency of the aortic valves.

VIII. EXTRA-UTERINE PREGNANCY.

Dr Matthews Duncan exhibited a foetus apparently nearly fully developed, but in an advanced stage of a peculiar decomposition, which he had delivered per anum as a breech presentation. He was indebted to Dr Sanders for this interesting case, the woman having been transferred to his care by Dr Sanders, under whom she was originally placed in the Royal Infirmary. The case was, in every respect, one of very great clinical interest. Dr D. would here only observe, that although the operation appeared very formidable, and the woman appeared to be in a state of very great exhaustion and danger, yet two days after the removal of the child she wished to be allowed to leave her bed and go to the fireside, and had made a rapid recovery without a bad symptom. After the birth of the child, Dr D. passed his hand and arm per anum into the cyst, to examine it and remove its contents. In two days after this great distension of the anus, it had so far recovered its function, that the woman, though affected with diarrhoea, no longer soiled her bed, and after other four days the sphincter acted quite as efficiently as before the operation, gently grasping the finger passed through it.

IX. CAULIFLOWER EXCRESCENCE.

Dr Matthews Duncan exhibited a beautiful specimen of this disease, which he had recently removed in the Royal Infirmary. The patient was admitted into this institution under the care of Dr Warburton Begbie, affected with anæmia and disease of the heart. She had no symptom whatever of uterine disease, except copious watery discharge. The vagina was found to be filled by this very large excrescence. Dr D. pulled it gently towards the vulva, and cut it off by sweeps of a probe-pointed bistoury. Very alarming hæmorrhage flowed immediately, but was arrested by a plug. Vomiting displaced the plugging lint, and a great stream of blood again spouted from the vagina, but was again easily and permanently arrested by the same means. The whole vaginal portion

of the cervix uteri was removed. A very slight examination of the section made by the bistoury would show why he did not expect a permanent cure in this case from the operation, and Dr D. would explain, by illustration, the advantage he hoped the woman would reap from the treatment. He had, not long ago, in very similar circumstances, removed a large cauliflower excrescence from a very sickly, exhausted, and almost emaciated woman. She rapidly recovered from the operation, and so improved in appearance and health as to be sought and married. The discharge was very greatly reduced in quantity, and it was not till nearly a year after the operation that it again became copious and weakening; but even at this time she was comparatively strong and healthy-looking. The advantage gained seemed referable to the great diminution of the copious discharge.

X. SPECIMENS OF NECROSIS.

Mr Annandale showed various specimens of necrosis from the femur, the fibula, and other bones.

XI. AMPUTATION AT THE ANKLE-JOINT.

Dr P. H. Watson showed the preparation and narrated the particulars of a case where he had lately performed amputation at the ankle-joint by an internal lateral flap. (A full account of this case will appear in an early number of this Journal.)

XII. FATTY TUMOUR FROM THE ARM OF A CHILD.

Dr J. D. Gillespie showed a tumour which he had removed from the outer side of the forearm (near the bend of the arm) of a child two years and a-half old. There was this peculiarity in the history of the case, that the mother declared that the tumour had appeared in a moment, after a fall the child met with when a year and a-half old. The mother seemed a respectable credible woman, but we must suppose that the tumour had existed, but had not been noticed before the fall, and that at that time something which had bound down the growth had ruptured, and had allowed it to become more superficial. On removing the tumour, the base was found surrounded by muscle, the remainder by skin and fascia. *Dr Gillespie* had not at first been disposed to consider the tumour as fatty, it was so much firmer and more uniform than these growths generally were, besides which they were rare in young children. On microscopic examination, however, it was found to consist almost entirely of fat held together by a moderate quantity of connective tissue. The prognosis was consequently much more favourable than if the growth had been a recurrent fibrous tumour, as *Dr Gillespie* had at first been inclined to think.

XIII. ON THE ERROR OF REGARDING THE "FLEXOR LONGUS POLLICIS" PEDIS MUSCLE OF MAN AS, NORMALLY, A FLEXOR OF THE GREAT TOE ONLY.

Dr John Struthers exhibited a dissection showing the tendon from the flexor longus pollicis to the second toe to be larger than usual. *Dr S.* remarked that this variety was one of degree only. The tendinous slip commonly described as connecting the tendon to that of the flexor longus digitorum was nothing less than a tendon from the so-called flexor longus pollicis to at least the second toe as well, constituting the latter, so far, a second flexor communis. Normally, the tendon to the second toe was from one-fourth to one-third of the size—sometimes more, sometimes less—of the tendon to the great toe, and therefore of nearly full proportionate size, when the relative magnitude and strength of the two toes were considered. It was larger than, and might be twice as large as, the tendon which the second toe received from the flexor longus digitorum, underneath which (as the sole lay in dissection) it passed before the two united, and the first lumbricalis muscle arose from it more than from the tendon of the flexor longus digitorum. By its connexion with the expansion formed by the flexor longus digitorum, or rather with that of the flexor accessorius, it was enabled to act, though less directly, on the

other toes, at least on the third. The flexor longus digitorum sometimes also gave, in exchange, a slip to the flexor pollicis, but this is a variety.

The occurrence of a tendon from the flexor longus pollicis to the second toe had been looked on by some as a variety, and as then establishing a significant correspondence to the condition in some of the quadrumana. The true zoological affinity was, however, best indicated by considering that, in ordinary five-toed quadrupeds, the five toes were supplied by a common muscle, that in the quadrumana there was either the same, or two common flexors variously disposed, or a connexion between the two muscles, while, in man, the corresponding condition remained in the foot, but disappeared in the hand by the complete differentiation of the flexor longus pollicis from the flexor profundus digitorum. The enormous development of the hallux, required for the erect posture, with the corresponding development of its long tendon, threw the other tendon relatively into the shade; but the connexion was not severed, as the hallux was not used as an independent digit, as the pollex of the hand was. What was remarkable in man, therefore, was not the presence of an association between the tendon of the pollex of the foot with the tendons of the other digits, but the absence of it in the hand.

XIV. ON THE CEREBRO-SPINAL ORIGIN OF PULSATIONS AND PALPITATIONS, AND THE VASCULAR BRONCHOCELE TERMED ANÆMIC.

Dr Laycock read a paper on this subject, which will be found at page 1 of this Number of the Journal.

The President, after expressing the pleasure with which he had listened to *Dr Laycock's* paper, alluded to what had been stated regarding the rarity of tubercular disease of the thyroid gland. A case of the kind had, however, come under his observation some time ago. The patient, a boy, was subject to paroxysmal attacks of difficulty of breathing; the left lateral lobe of the thyroid was enlarged, it felt pretty firm, but indistinct fluctuation could be detected. As the symptoms were urgent, he cut down in the mesial line (so that tracheotomy could be performed if necessary), put aside the muscles, and on reaching the left lobe of the gland, as fluctuation was manifest, an incision was made into it. From this opening a sero-purulent fluid of rather a milky character escaped; and, on enlarging the wound, a quantity of flaky purulent matter came away, just like what was found in other glands which had undergone scrofulous degeneration.

Dr Haldane had listened to *Dr Laycock's* paper with much interest, not only from its intrinsic importance, but still more as being an excellent example of a new method of investigation. Of late the tendencies in pathological research had undoubtedly been too materialistic. The microscope and morbid anatomy had done a great deal, but they could not inform us as to what disease was in its essence, and especially in its early stages. By means of them we recognised changes which had occurred, and which were inconsistent with the integrity of the organism; but we could not trace those primary and more important phenomena in which the changes originated. All recent research had shown how closely the nervous system was connected with nutritive changes both in health and disease; and since the investigations of Claude Bernard, Brown-Séquard, and others, a new field of pathological inquiry had been opened out. We were now in a position, in some cases at least, to refer morbid phenomena to changes in the nervous system, at a time when no material lesion could be recognised by our senses. No doubt there was a danger of pushing this kind of investigation too far, but the same might be said of every mode of research, and *Dr Laycock's* paper was an excellent example of the results which might be expected from the further development of this method.

Dr Warburton Begbie, while entertaining no doubt as to the nervous origin of many cases of bronchocele, was not prepared to give up the connexion of this condition with anæmia. He would not, however, enter into the subject at present, but would take an early opportunity of bringing it before the Society in reference to several interesting cases he had recently had under observation.

PROCEEDINGS OF THE EDINBURGH OBSTETRICAL SOCIETY.

SESSION XXII.—MEETING IV.

January 28, 1863.—Dr PATTISON, President, in the Chair.

ON VACCINATION AND A VACCINATION-BILL FOR SCOTLAND.

By way of opening the discussion on the subject of vaccination, and the necessity of having a vaccination-bill for Scotland brought into Parliament, the *President* begged to remind the Society of a conversation that had arisen among some of the Fellows at the close of the last ordinary meeting, bearing upon the present prevalence of smallpox in the city, when there seemed to be a general impression that the present would be a fitting occasion to have the further spread of this epidemic or its future occurrences prevented as far as possible by legal enactment. He (*Dr Pattison*) had seen some of the registrars of births, marriages, and deaths, with the view of ascertaining whether they could not also register vaccinations, and these gentlemen thought they might undertake such a registration if their premises were enlarged and their salaries increased! Perhaps *Professor Simpson*, who had mooted the subject at last meeting, would now favour the Society with some remarks.

Professor Simpson said, that he had once had occasion to make inquiries of one of our Registrars as to the number of entries he had to make every day, and found that they averaged about six a-day. Two or sometimes three of these registrations would be of the births of children, and it would be no great additional trouble to register the vaccination at the same time; in cases where the child had been vaccinated, all that was required being that an additional column should be made in the register, in which the letter V. could be inserted. The machinery for the enrolment of the vaccination thus lay to hand simply enough; but perhaps there might be some difficulty in getting the parents furnished with the vaccination-certificate, and, of course, a Registrar could only make the entry when a duly attested certificate was produced. He (*Prof. S.*) thought that a most ridiculous and damaging mistake had been made by the framers of the English vaccination-bill introducing a set of special practitioners called vaccinators, as only fit legally to vaccinate, and in accepting certificates from such men only. You might as well enforce a class of specialists for performing amputation, or for passing the catheter, or for bleeding, or for ought else. If there were an excuse for such officially appointed vaccinators, at a time when there was no kind of legal test as to the standing of medical men, and no protection against the imposition of quacks, there was at least no kind of excuse now. For now that all properly qualified medical men were officially and annually registered by Act of Parliament since 1859, it should be enough for the Registrar of vaccination to see that the certificate was signed by a duly registered practitioner. But in whatever way it was sought to be accomplished, he (*Prof. S.*) believed that as men engaged in the daily practice of medicine, they were all clearly of opinion that it was high time that some steps were taken towards securing the more general vaccination of the community, and their more efficient protection against these epidemics of smallpox that were from time to time breaking out amongst us. And he thought that there might be some hope of a successful issue if the movement were made at the present time, when people were alarmed by the presence of smallpox, and men's minds were directed to its dangers by seeing upwards of 160 lives destroyed by it in their city in the space of three months; and if the present opportunity were allowed to pass unimproved, alarm would quiet down, and there would be no possibility of getting anything done till a new epidemic broke out and more lives were sacrificed. *Dr Andrew Wood*, who had been making some investigations into the matter, had informed him that most of the deaths occurred in children under five years of age who had not been vaccinated, and thus almost all the lives that have been lost might have been spared, could we only have had it

in our power to enforce the simple measure that has proved such an effective safeguard against this fatal malady. A great deal had been said about the carelessness of a railway pointsman, who had lately inadvertently caused the death of some twenty people by neglecting to turn a railway signal; but what should be said of the carelessness of our Members of Parliament, who allowed such numbers of deaths to occur from time to time without making any effort towards their arrest? They found time to legislate about salmon and boundaries of burghs, but cared not, apparently, to bring forward measures to save human life. He believed the Lord Advocate had been privately spoken to on the subject, but nothing had been done; and as it was evident that some kind of compulsion must be brought to bear on the Members, perhaps it might be advisable to ask the Town-Council, as the best representative of the community generally, to press the subject on the attention of our Members. Whoever undertook to frame a bill on this subject for Scotland must seek to avoid the error which the framers of the English Vaccination Act had fallen into, of making the medical men spies, as it were, on the public, in asking them to inform upon the unvaccinated. The enforcement of vaccination here should be left to the Registrars; and perhaps their work could be simplified if children were vaccinated at an earlier period than is at present the custom among us. If infants were vaccinated within a week or two after birth, instead of a month or two, the registration of birth and vaccination could be effected at once; and it would be well to gather the experience of the Society as to the expediency of such a change in practice.

Dr Pattison stated that during the present epidemic he had vaccinated three children within a fortnight after their birth, and all with perfect safety and success.

Dr M'Cowan gave it as the result of his experience, that the practice was quite safe, and cited, in particular, one instance where he had vaccinated an infant the day after its birth with the most satisfactory result. He added that the City and St Cuthbert's Parochial Boards had, at their recent meetings, had under discussion a proposal to urge our Members to bring in a vaccination-bill.

Dr Bruce believed that early vaccination would be quite safe and satisfactory for any given infant. But this objection to adopting early vaccination as a rule in practice, suggested itself to him that as syphilis in the infant often does not show itself till after three months, we might have vaccinated an infant with a syphilitic taint and taken from it unhealthy matter, with which it would be very inadvisable to vaccinate any other infant.

Dr Priddle thought that wherever there was any reason to suspect the presence of syphilis in an infant, we should not think of taking the matter from it. He had himself recently vaccinated five infants within from 8 to 14 days after birth. In all, the vaccination took and ran its due course, except in one, which died on the fifth day, of convulsions; but he was not prepared to attribute the convulsions in this case to the vaccination. He might state, that having been obliged lately to vaccinate two young women who had never before been vaccinated, he was surprised to find that in one of them it did not take. On questioning the patient, he found that the attempted vaccination had been made during her menstrual period; and having repeated the operation at an intermenstrual period, it proved successful.

Dr Husband remarked, that Sir John Ogilvy had drawn up a bill, which had been circulated among some of the medical bodies. He (*Dr H.*) thought the introduction of a compulsory clause was a very difficult and delicate question; and any compulsion that was exerted must at least leave the patients free to choose their own doctor: an act that would compel people to go to any individual official vaccinator would be tyrannical. In England, the Registrar of births gives notice to the registering party that a certificate of vaccination must be brought within a certain time; the same might be done here; and where the notice was not attended to, a reminder could be sent, perhaps through the police. With reference to the early vaccination of infants he might state,

that he (Dr H.) had vaccinated them, when smallpox was prevailing, when they were only an hour old. But in attempting to vaccinate very young infants, he had sometimes found it difficult to get them to take. In one instance, he had attempted three different times to vaccinate a very young infant, and each time he had taken the precaution to make application at three different spots with lymph from three different sources, and the vaccination only took at the last experiment. He would like to know, whether, in the experience of the Fellows of this Society, very young infants were as liable to the influence of smallpox as older people.

Dr Keiller thought not, and could relate an illustrative instance that had recently come under his observation. But before doing so, he begged to introduce to the Society a gentleman whose history he believed would be interesting to all present, inasmuch as he had been vaccinated by the hands of no less notable a vaccinator than those of the illustrious Jenner. This gentleman, who was now forty years of age, had been born in Berkeley (where Jenner practised during his last years, just about a year before Jenner's death, and he, as well as his sister, who had both recently applied to him (Dr K.) to be revaccinated, had been vaccinated in their infancy by Jenner himself. On the left arm, as the Fellows could perceive, there were two distinct vaccine scars, which presented the appearance commonly seen after a vaccination effected by a single puncture with a lancet-point.

The case which he (Dr K.) meant to relate, in reference to the question put by Dr Husband, was that of a patient who had been seized with smallpox a fortnight or so after her confinement. She was taken to the Infirmary, where she died a week afterwards. Her married sister came, bringing with her a child two months old, to take with her to the country the motherless infant. She was seized with smallpox, and died of it within a fortnight. Neither of the two infants, though unvaccinated, became affected with the disease; but the child of another sister, a girl of four years of age, took the disease and died. It would be an interesting subject of inquiry to discover what proportion of children died of the disease in the early months. He (Dr K.) thought Farr's tables extremely unsatisfactory in regard to this matter, because all the deaths of children under five years of age were slumped together without distinction. He knew of a case of recent occurrence, in the practice of another medical man, where a child was successfully vaccinated when only two days old. The mother died of smallpox.

Professor Simpson said, that it might not be practicable always to register the vaccination at the same time with the birth of the infant, but the Registrar had the address, and could trace out the case without any great difficulty. And since law already interfered in some cases, such as in compelling people to burn their smoke, he thought it was quite a fair extension of the principle to compel people to take measures to protect their families from smallpox, and so to prevent their houses from becoming dangerous, from the liability to this disease which distinguishes the unvaccinated. Our present system, as laid down by Sir John McNeill and the Scottish Poor-law Board, was utterly preposterous, both politically and medically, and of necessity utterly inefficient, as they all well knew. He (Prof. S.) had spoken two days ago to a medical man in large practice in the country, who was vaccinator for a district, and who informed him (Prof. S.) that the time spent at his vaccination station was always lost, as nobody came there to be vaccinated; and this was an almost universal experience. The subject, therefore, must be taken up by our Members of Parliament; and as they did not seem inclined to take any steps of their own accord, he (Prof. S.) would beg to propose that this Society should make a representation on the subject to the Town-Council, with the view of getting them to persuade our two Members of Parliament to action; and, with this view, he begged to propose that the office-bearers of the Society be appointed a committee to draw up a statement, and be empowered to bring the subject under the notice of the Lord Provost, Magistrates, and Town-Council, who are the proper representatives of the community. He

(Prof. S.) thought that such a movement would be attended with at least this good result, that it would cause the subject to be brought fairly under the notice of the public by the discussion that would ensue.

Dr Husband seconded the motion.

The *President*, in putting the motion to the Society, begged to propose that the names of Professor Simpson and Dr Husband be added to the other members of the committee; and that Professor Simpson be appointed convener. The motion was carried unanimously.

SESSION XXII.—MEETING V.

February 11, 1863.—Dr PATTISON, *President*, in the Chair.

I. REPORT OF VACCINATION COMMITTEE.

The *Secretary* reported that the Vaccination Committee had met, and after duly considering the points which the Society had had under discussion at the last meeting, had drawn up the following Memorial, which the committee hoped the Society would approve of, and cause to be presented to the Town-Council of the city:—

“The *President* and Fellows of the Edinburgh Obstetrical Society have at their meetings lately had the calamities resulting from the want of a Vaccination Bill for Scotland pressed upon their attention. They, in consequence, beg respectfully to submit to the Right Honourable the Lord Provost, the Magistrates, and the Town-Council of Edinburgh, the following propositions relative to smallpox and its prevention:—

“I. Before vaccination was introduced, at the end of last century, among the eight millions who then constituted the population of England and Wales, it has been computed, by statistical calculations, that about 30,000 or 40,000 died annually from smallpox. Had vaccination not been discovered, therefore there would, at the present time, be lost every year on the average above 700 lives by smallpox in such a population as that of Edinburgh and Leith. But the practice of vaccination has reduced that mortality to a very small annual average—from hundreds almost to units.

“II. During the last four months alone, however, upwards of 200 lives have been lost in Edinburgh and Leith from smallpox,—a mortality that would have startled the community if it had been produced by other preventible causes, such as railway or steamboat accidents, the falling of old houses, or the like.

“III. The great majority of these 200 deaths would have been prevented had vaccination been universal, because most of them occurred among children under five years of age, nearly all of whom were unvaccinated, and almost all the adults who died of the disease in the Royal Infirmary were similarly unprotected. Two hundred persons, therefore, have been destroyed by the epidemic of smallpox, who might have been alive in our midst at this day had the community been protected by efficient vaccination.

“IV. Besides this painful, and in a great measure unnecessary sacrifice of the lives of our fellow-citizens, several thousands of them have been attacked with the disease in a non-fatal form, and thus much expense and loss have been incurred to the community. Besides, it must never be forgotten that a high death-rate and a high sick-rate always produce a high poor-rate.

“V. The general trade of the city, its schools, shops, hotels, etc., have been affected by individuals and families having been deterred from coming to town this winter by the amount of mortality and sickness resulting from small-pox among us.

“VI. The purchase of coffins and graves for the 200 slain by the disease must have cost, at a very low computation, from £200 to £300, while the expense and loss incurred by those who have been laid up with the disease and have recovered, amount to many hundred pounds more. This sum would have been far more than sufficient to vaccinate the whole population, for here, as else-

where, the prevention of evil to the community is infinitely cheaper than its cure.

"VII. The registration of vaccination could be easily effected in Scotland—no new machinery being required—at present the *birth* of every child is obliged by law to be registered. All that is needed further, is that the Registrar give notice to the parent to bring back, within three or six months, a certificate of the successful vaccination of the infant, attested by a legally qualified medical practitioner. A new column merely requires to be added to the present registration of births, marriages, and deaths; and surely the registration of the vaccination of a child is more important for the safety of the community than the registration of its birth or death.

"The President and Fellows of the Edinburgh Obstetrical Society have taken the liberty of submitting those propositions to the Right Honourable the Lord Provost, the Magistrates, and Town-Council of Edinburgh, with the view of urging them, as guardians of the community, to make strenuous efforts to persuade the Members of Parliament for Edinburgh of the immediate necessity of carrying through Parliament a Vaccination Act for Scotland, which would have the effect of having, as in most other kingdoms of Europe, a universal vaccination amongst us, and so of warding off, as far as possible, the dangers and deaths attendant on the frequently recurring epidemics of smallpox."

The Report was unanimously adopted; and on the motion of Dr A. Simpson, seconded by Dr McCowan, it was resolved to empower Dr Pattison, as President of the Society, and Professor Simpson, as Convener of the Vaccination Committee to sign the memorial, and present it at the first meeting of the Town-Council.

II. SMALLPOX ARRESTED BY VACCINATION.

Dr Keiller communicated the following note of a case from *Dr Archibald, St Andrews*:—

"A lady here had engaged as cook for the last Martinmas term, a young woman of 23 or 24, from the north-west corner of Forfarshire. Before coming home, she went to visit a sister in the Edinburgh Infirmary, and slept there, but avers that she was not in any of the wards, and did not come in contact with any of the patients. On coming home to her place she felt cold and shivering, which for two days she attributed to the change of climate. She was immediately laid up with smallpox, and was severely ill; the pustules were very confluent all over. She says she was vaccinated, but I am doubtful of this. So soon as it was ascertained that it was smallpox, the whole household were re-vaccinated, numbering eight individuals; and the re-vaccination held on every one beautifully, at which I confess I was surprised. Among those re-vaccinated was a maid of about the same age, who, out of compassion, slept with the new cook to keep her warm, as she felt the cold so much. In a day or two this maid took ill, and was sent home to her father's in St Andrews. She told me then that she felt ill when she was re-vaccinated. In two days smallpox made its appearance, and went on for three days, and appeared a good size for that date. The third day of the smallpox was the eighth day of the re-vaccination (which was almost as perfect as in an infant). There they stopped and gradually disappeared, although a smart fever continued for four or five days."

Dr Keiller stated, that he lately saw a servant-girl in York Place who was attacked by symptoms of smallpox, and although all the members of the family in which she was living were vaccinated a second time, yet several of them took the disease. H., *æt.* 27, took ill on 25th October: a week afterwards a mild attack of smallpox appeared. R. was vaccinated when ailing slightly; it took, but smallpox eruption came out, and kept pace with the vaccine. The attack in this case was pretty severe. The maidservant was vaccinated a month before; it took well. During R.'s illness, however, she became feverish, had headache, pain in back and throat, and, indeed, all the symptoms of smallpox, but no eruption. She remained a week in bed, and gradually recovered. J., whilst complaining of feverish symptoms, was vaccinated about a week

after R. It took, and was accompanied by several pustules on the arm and forearm; he was going about; but about a fortnight after vaccination a mild attack of smallpox took place.

Dr Alex. R. Simpson said that a case of the kind under discussion had just come under his own observation. He had been in attendance on a girl nine years of age, who had been attacked with the disease in a very severe form, notwithstanding that she had been carefully vaccinated in infancy, and showed on her arm two large and characteristic scars; and six days from the date of the commencement of this child's illness, he vaccinated her sister, a girl two years older. This elder sister had been attempted to be vaccinated in infancy; but, according to the mother's statement, the result had not been satisfactory, and certainly the scar was anything but distinctive. On this occasion the vaccination proved successful, and the pustule ran its course exactly as in an unvaccinated person. But twelve days from the day on which the operation had been performed, a few red spots appeared, scattered very sparsely over the face, arms, and trunk, which grew up into abortive vesicles, like those of chickenpox, and then faded away, without even being attended with any degree of constitutional disturbance so great as to render it necessary for her to be confined to bed.

III. RESULTS OF VACCINATIONS AT THE MATERNITY HOSPITAL.

The *Secretary* read the following report by *Dr David Murray*:—"I have myself vaccinated altogether about twenty-five cases, a few of them being done by others, at my request, out of doors. The following exhibits the respective ages of the patients:—Five at 1 day old; six at 2 days; three at 3 days; four at 5 days; four at 6 days; three at 7 days. In every case the vaccination was perfectly successful, and seemed to take very readily,—the amount of lymph in some instances being almost imperceptibly small. The vaccine vesicles went through their course successfully in the usual time, and were very complete and well formed. No injurious effects were observable; the children took the breast, and appeared as if nothing unusual had been done to them. No child of even three months could have been less disturbed.

"If dangerous results had been likely to have followed the performance of the operation, I believe that it would have been so in the present instances, as it is well known that many of the children born in the Maternity Hospital are very unfavourably situated, having by no means good constitutions transmitted to them. Though, therefore, the number is comparatively small from which to form an extensive induction, yet I consider that the present results sufficiently entitle us to draw the following conclusions:—

"1. That no danger attends vaccination at even the earliest period of existence, and that, therefore, it may be done with perfect impunity.

"2. That the vaccine lymph seems to affect children as readily, if not more so, at that early period than at a more advanced age.

"3. That most of the dangers or bad effects which are said to have followed the employment of early vaccination cannot fairly be attributed to any constitutional disturbance occasioned by the operation, but must have arisen altogether independent of it."

IV. RESULTS OF VACCINATION OF YOUNG CHILDREN.

The *Secretary* read the following report by *Dr Ritchie*:—"1. Mrs F.'s boy, 12 hours after birth;—successful. 2. Mrs C.'s boy, 10 hours after birth;—successful. 3. Mrs M.'s boy, 62 hours after birth;—successful. 4. Mrs B.'s boy, 5 hours after birth;—successful. 5. Mrs B.'s child, 5 days after birth;—successful. 6. Mrs M.K.'s child, 4 days after birth;—successful. 7. Mrs M.L.'s boy, 3 days after birth;—unsuccessful."

V. REMARKABLE MALFORMATION OF THE GENITO-URINARY ORGANS.

The *Secretary* read the description of a case of difficult parturition in a woman, presenting some remarkable malformations of the genito-urinary organs, contributed by *Dr Burton* of Walsall:—

"C. H., æt. 27, second pregnancy, the first terminating in a spontaneous abortion at 6 months, after two days labour pains without medical assistance.

"When a child of 9 years of age, C. H. was brought under my notice in the Walsall Union Workhouse, as "made different from other girls, and unable to hold her water." Upon examination I found the pudenda excoriated, and upon the mons veneris, about equidistant one inch or more from the centre, two papillæ perforated on their apices by small openings, from which a urinary weeping was taking place, varied occasionally when the child winced, by a small urinary jet. The orifice of the vagina seemed to be in a mass of granulations, covered with mucous membrane (at all events not ulcerated). As no operative measure for relief suggested itself to me, I advised 'let alone' until the menstrual period arrived, and trust to nature. She remained in the workhouse, and gradually acquired the power of retaining the urine for longer or shorter periods,—half an hour to two hours. Menstruated at 14, and left the workhouse to go to service, and I had lost sight of her until the night of 22d inst., when I was called to assist a midwife who 'had a woman she could not manage, because there was no opening or passage to the womb, and she had been in labour 5 days.' Upon seeing the patient I recognised my old patient, and upon making an examination, during a rather strong pain, I found projecting from the vagina a conical-shaped corrugated body, terminating in a thin membranous apex, which seemed to come out of a thick and hard ring of the larger body. No aperture could then be distinguished; but by pressing upon this membranous portion, something like a fetal heel could be felt. The midwife explained that this body had come down several times during the pains, and that she had pushed it up in the intervals,—sometimes as large as her fist.' After the pain passed I returned the prolapsed part (which I took to be the os uteri, etc., caused by the inverted vagina), and upon further pressure upon the membranous apex it yielded upwards, and I then found a roundish opening large enough to admit a female silver catheter, with which inside, and the finger outside, I made an exploration, and could distinctly make out a fetal limb, and that it was an opening into the cavity of the uterus and not the urethra. Reasoning that this membrane and the thick cartilaginous (feeling) ring were cicatricial structures, and closed the uterine aperture, I, by gentle proceedings, succeeded in inserting the point of the index, and subsequently of two fingers, with which I made out a right-elbow presentation with the hand upon the thorax, making an acute angle. As the liquor amnii had been evacuated for two days, and the woman was much exhausted, and no progress making in the dilatation of the os uteri, which was of a very unusually rigid feel, I resolved to give her an opiate to procure some rest from the frequently recurring, trifling pains, and thus trust to nature doing something for her by way of relaxing the os uteri—the parts being cool and moist. I accordingly gave her one drachm of tinct. opii, and in an hour, finding her asleep, I left with orders to call me if anything occurred like active pains or exhaustion. This was about 2 A.M. Hearing nothing of the case to hasten my proceedings, I went again, accompanied by my friend Mr E. D. Moore, at 9.45 A.M. I found that my patient had had a good sleep ever since I left, interrupted now and then by a pain; felt 'refreshed and strong,' and fitter to go through with 'what she had to do, as she had not slept for five days before.' She explained that she had made water several times 'from the womb' during the night, although 'some had come from the two lumps,' which had become very raw and sore with the straining. Finding the os uteri much more relaxed in its posterior two-thirds, and capable of admitting the fingers and thumb, in a cone, up to nearly the knuckles, we determined to turn the child, and try to deliver. This Mr Moore, whose hand is much smaller than mine, proceeded to do, whilst I administered chloroform, to induce a moderate anaesthesia. He having, with only moderate difficulty, brought down a foot, and looped it with a tape, I took charge of the case; and the pains recurring tolerably strong, I succeeded in returning the arm and bringing about a complete version, securing and extracting the other leg. The child's pelvis gave me

some trouble, as it was very firmly grasped by the os uteri; the abdomen and thorax passed tolerably well; and I got down the arms without much difficulty, and the pains abated; but after a few minutes a strong expulsive effort took place, and the head seemed to come down on the os externum, distending the perinæum. A second pain made no progress, and I then discovered that the os and cervix uteri, grasping the head very closely, were projecting from the os externum, and the perinæal orifice was soft, and relaxed three-fourths of an inch posterior to what at first felt like the perinæum, but was, in fact, the uterus (there was a good deal of blood oozing at the time). The cord had ceased to pulsate, and I suspected partial or whole separation of the placenta. In the interval of the pain I slightly pushed up the head, and inserting two fingers, passed them round the uterine orifice, and found it as hard and unyielding as a thick catgut cord. Under the circumstances, with a dead child, there could be no doubt of the propriety of lessening the head; and I effected, with some trouble, an opening into the occipital bone on the left side, that being the only part I could reach, and, at the same time, protect the mother's parts with two fingers. After breaking up the skull I inserted two fingers, and pressed in the occipital and part of the right parietal bones into the cavity of the cranium, and effected the delivery of the head. The placenta was immediately found in the vagina, and extracted. The whole time occupied about an hour and a half. The subsequent proceedings were normal, the uterus contracting well, and the woman has not as yet shown any bad symptom.

"By and by, when the patient is fit, I shall try and find out if there is any orifice of the urinary passages into the vagina. She tells me that she has made water that way 'from the womb' for a long time past, and the openings on the pubis have only reappeared during the present labour, 'owing to heavy straining.' They are extremely red and sensitive, and the least contact with anything gives her acute, smarting pain.

"The infant was a male at full time, weighing, I should guess, from $7\frac{1}{2}$ to 8 lbs."¹

Dr A. Simpson said that Dr Ayres of Brooklyn, New York, had published, a few years ago, a history of a case of ectropion vesicæ, for which he had operated successfully. That was perhaps the only case on record of a successful operation for the cure of that distressing deformity; and the case was the more interesting that, as in the case of the woman for the narrative of whose history the Society were much indebted to Dr Burton, the patient had given birth to a child, though seemingly without any special difficulty. Professor Simpson had twice operated for the relief of such a case, but without any satisfactory result.

VI. CASE OF ABORTION OF TWINS.

The *Secretary* read report of the following case by Mr R. Lawson Tait:—"On Wednesday, 4th February, my patient was confined to bed, and complained of severe pains, occurring about every four hours, extending from the ensiform cartilage gradually down to the pubis. The abdomen was quite as much distended as that of a woman in the ninth month. The placental bruit could be heard in the left iliac region, but there were no sounds of a fetal heart. Fluctuation was easily felt by placing one hand flat over the abdomen, and percussing gently at a little distance. The os was not at all dilated.

¹ The following additional note, relating to the subsequent history of this case, has been furnished by Dr Burton:—"13th June 1863.—The patient has made a complete recovery. No vesico-vaginal opening, but urinary stillicidium from a large mucous tubercle on the mons veneris, and not from the two papillæ, which seem to be a cleft clitoris. There is properly no anterior wall to the vagina nor bladder. The pubic mucous surface seems to be the remains of a bladder, and the two points from which the urine drops are probably the ureters. The osseous symphysis pubis is awanting, and a strong ligamentous tissue from the remains of the superior pubic rami has taken its place. The exposed bladder surface is being covered with a dry epithelium, and the urine is again being retained (in the dilated ureters?) for a short time, being expelled slowly and with much straining every half-hour or hour.

There was œdema of the surface of the abdomen, and of both feet and legs. As she sleeps little, an opiate was ordered.

"*Friday*.—Pains about the same. Last night and to-day she has been unable to breathe easily in the recumbent position.

"*Saturday*.—Pains more frequent and severe. Perfect orthopnœa. Placental bruit cannot be heard.

"*Sunday*, 2 P.M.—The urine was noticed to be albuminous. Pains much the same as yesterday. Os dilated so as readily to admit the finger. 6 P.M., a sponge tent was introduced into the os uteri by the advice of Dr A. Simpson. At 10 P.M., the os was well dilated, and the cone of membranes pressing through. They were artificially ruptured at 12 P.M., when an extraordinary gush of liquor amnii took place,—nearly 140 ounces were afterwards measured, besides what saturated the bedclothes. In a few minutes a fetus presented by the feet, and was extracted; the cord being very much twisted round its legs and body. Another fetus was now found to be presenting by the head, and was after a few pains expelled. Both fetuses were quite dead, and very much discoloured. The placenta showed no signs of coming away, and in about half an hour a pretty smart attack of hæmorrhage induced me to introduce my hand into the uterus to remove it, but I found it to be adherent for a considerable space at the fundus. After a considerable amount of manipulation it was removed, all except a small tag.

"*Monday*.—The urine still albuminous. She has slept well. Pulse 90, and full. Bowels have been moved. She has gone on improving since, and has had no bad symptom.

"This case is interesting, as abortions at such an early period as between the fourth and fifth month from hydramnios are not common. She states that the last day of her last catamenia was the 12th of September, and that about the end of November she noticed that she was very large, and since then she has rapidly increased. She has not been pregnant before. The placenta is fatty; and this case illustrates the connexion between that condition of the placenta and albuminous urine."

CHILDREN OF BLOOD-RELATIVES.

(To the Editor of the *Edinburgh Medical Journal*.)

IN reasoning on matters connected with this topic, it is needful to guard against error. In consanguineous marriages, if both sides be healthy, the offspring will be healthy. If both sides display the same defects, these defects will be intensified in the children. We see in effect healthy offspring in close marriages. We also see unhealthy offspring. If it be admitted that in each individual or family there subsists some weak point, then will the weak point be multiplied in the descendants. But if no such weak point subsist, it is difficult to perceive why the children in marriages of consanguinity should be otherwise than healthy.

Bakewell, in the rearing of stock, realized very important and very desirable results by breeding in and in. With respect to the horse, the dog, the sheep, the cow, the practice has been carried to a much greater extent than law or morals would permit in man. But in the lower animals we have a much greater command over the conditions of healthy life, in the general, than we have in man, where every individual is comparatively free to follow his own fantasy. It must be admitted, indeed, that every effort should be made to prevent marriages between diseased blood-relations. But then it must also be admitted, that marriages between unhealthy persons not related are likewise most undesirable.

In the Jewish community, intermarriages subsist even between uncle and niece. And the Jewish people, generally, may be said to have married in and in, thus preserving their physical peculiarities for a period of at least 2000 years. Now, does it appear that the Jews, as a race, are more unhealthy and

debilitated than other people? I know no one who affirms that they are so. I certainly cannot affirm it myself, and I have known many Jewish families.

The interesting community of the Pitcairn Islanders, now removed to Norfolk Island, Australia, are reported to be very beautiful, and very healthy, yet they have intermarried to a very notable extent. There is, however, a little community on our own shores, the members of which have intermarried for many generations. They are very robust and very healthy. I speak of the inhabitants of Tory Island, on the north-west coast of Donegal. They contract no alliances, it is said, except among themselves.

The matter may be very safely left to the good sense and inclinations of mankind. Marriages of consanguinity there will be always. But except in the case of isolated communities, they will never be numerous. And, certainly, if the same good sense be exercised in contracting such alliances as is exercised under circumstances where there is no relationship, no inconvenience need ever be apprehended from them.

HENRY M'CORMAC, M.D.

BELFAST, 11th June 1863.

ANECDOTES OF DESGENELTES.

SOME amusing anecdotes are told in the *Union Médicale* of this celebrated Army-Surgeon while officiating as Examiner at the Faculty. He was the very providence of the weak and feeble. His questions were of interminable length, and when the candidate sometimes attempted to put in a few words, he would exclaim, "Now, silence, will you! Your interruption is neither polite nor politic. It is not polite, for no man should be interrupted while speaking; and it is not politic, for while I am talking you are committing no errors, and the time is running out." An affirmative vote was the inevitable result of these interrogatories. On one occasion, however, he had to examine Kerrouman, a famous pharmacien of encyclopædial knowledge and lively wit, who wished to become a Doctor. Broussais first examined him, and the replies were solid and brilliant. When Desgeneltes' turn came, he said, "I have to examine you in Hygiene, which embraces Medical Police. You may be called upon to exercise municipal functions, as I have been (Desgeneltes was mayor of his *arrondissement*), and you ought to be acquainted with the laws and regulations which govern Medical Police. Now, what would you do supposing, as happened to me yesterday, you arrived home at ten o'clock at night, and found a man easing himself at your door?" Those present burst out laughing, and Broussais touched his elbow, as if to say, do now be more serious. Kerrouman, swift as an arrow, and with indescribable irony, replied, "Sir, the case you put would appear to me of so serious a nature that I should call you into consultation." Again bursts of laughter followed; but, strange to say, Desgeneltes, who usually so keenly relished a witty reply, became much ruffled, and voted against the candidate. The matter, without the interference of Broussais, would have been brought before the Faculty.

PROFESSOR SCANZONI.

It would appear that this eminent obstetrician was on the point of leaving the Würzburg chair, where he has acquired such fame. Thereupon, a petition, numerously signed, was sent to the King of Bavaria, praying that measures might be adopted to induce the professor to stay at Würzburg. The king immediately wrote to Scanzoni, *propria manu*, requesting him to stay, and allowing him to intrust the theoretical part of the teaching to his assistant, Dr Franqué. This arrangement has settled the matter; and Dr Scanzoni has left for St Petersburg on account of the accouchement of the empress, and will remain four weeks in that capital.

GENERAL MEDICAL COUNCIL.

WE understand that the General Medical Council, which is just on the eve of completing the fifth year of its existence, held its first dinner on Saturday, the 30th ult., in the Albion Tavern, Aldersgate Street. Mr Green, the President, occupied the chair; Prof. Syne, of Edinburgh (who was the original proposer of the dinner), occupied the vice-chair. There were present—Mr Lawrence, Dr Stokes, Dr Acland, Dr Christison, Dr Sharpey, Dr Appjohn, Dr Andrew Wood, Dr Alex. Wood, Mr Teale, Mr Arnott, Dr Storrar, Dr Allen Thomson, Dr Burrows, Dr Embleton, Mr Cooper, Dr Corrigan, Dr Aquilla Smith, Mr Hargrave, Dr Fleming (of Glasgow), and Dr Leet. Dr Bond was absent from unavoidable circumstances. The evening was spent with the utmost harmony and good fellowship, with mirth and with song; and the members of the Council separated under the firm conviction that the annual dinner should form a regular institution of the Council.—*Lancet*, June 6.

THE HYPOPHOSPHITES IN CONSUMPTION.

(To the Editor of the *Lancet*.)

SIR,—My attention has been called to Dr Cotton's report of cases treated at the Brompton Hospital for Consumption by my syrups of hypophosphite of soda and lime. I consider that report so highly favourable to the use of the hypophosphites, that I am persuaded many hospitals, dispensaries, and public charitable institutions will be induced to adopt them as the basis of their treatment of phthisis. To further as much as lies in my power and extend the use of these medicines, I beg to inform all those who are interested in the subject, through the medium of your journal, that I place gratuitously, at the disposal of hospitals or other charitable institutions in England, a supply of the syrups of hypophosphite of soda and lime, and pills of hypophosphite of quinine and of manganese, to the extent of two hundred bottles.—Yours respectfully,

Laboratory, 12 Rue Castiglione, Paris, May 1863.

H. H. SWANN.

PUBLICATIONS RECEIVED.

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| <p>Budd,—Malignant Pustule in England. By William Budd, M.D. London, 1863.</p> <p>Clark,—Outlines of Surgery. By F. Le Gros Clark, Surgeon. London, 1863.</p> <p>Cruelty to Animals.—Report of Proceedings at International Congress, at the Crystal Palace, Sydenham.—"Venesection." Epidemiological Society of London, Transactions of the. 3d Part of 1st Vol. London, 1863.</p> <p>Hawkins,—The Constitution of the Deaf and Dumb. By J. Hawkins. London, 1863.</p> | <p>Jacobi,—Dentition and its Derangements. By A. Jacobi, M.D., etc. New York, 1862.</p> <p>Metaphysics. The Nullity of, as a Science among the Sciences. London, 1863.</p> <p>Roger,—Clinical Researches on Auscultation of the Head. By M. Henri Roger, M.D. Translated by Alfred Meadows, M.D., etc. London, 1863.</p> <p>Routh,—Infant Feeding, and its Influence on Life. By C. H. F. Routh, M.D., etc. 2d Edition. London, 1863.</p> |
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PERIODICALS RECEIVED.

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| <p>Births, Deaths, and Marriages, Monthly Return of, for May 1863.</p> <p>British Medical Journal,—May 30, June 6, 13, 20, 27.</p> <p>Canstatt's Jahresbericht,—Part I. for 1862. Würzburg, 1863.</p> <p>Dublin Medical Press,—May 27, June 3, 10, 17, 24.</p> <p>Gazette des Hôpitaux,—Nos. 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72.</p> <p>Gazette Hebdomadaire de Médecine, etc.—May 29, June 5, 12, 19.</p> <p>Gazette Médicale d'Orient,—May. Constantinople, 1863.</p> | <p>Gazette Médicale de Paris,—Nos. 21, 22, 23, 24, 25.</p> <p>Journal de Médecine et de Chirurgie,—June. Paris, 1863.</p> <p>Medical Times and Gazette,—May 30, June 6, 13, 20, 27.</p> <p>Revue de Thérapeutique Medico-Chirurgicale,—June, 1, 15.</p> <p>Wochenblatt der Zeitschrift der Aerzte.—Nos. 13 (twice), 15 to 20. Vienna, 1863.</p> <p>Würzburger Medicinische Zeitschrift,—Part 2, Vol. IV. 1863.</p> <p>Würzburger Naturwissenschaftliche Zeitschrift,—Parts 3 and 4, Vol. III. 1863.</p> |
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Part First.

ORIGINAL COMMUNICATIONS.

ARTICLE I.—*On Diphtherial Nerve-Affections.* By EDWARD HEADLAM GREENHOW, M.D., Fellow of the Royal College of Physicians; Consulting Physician to the Western General Dispensary; Assistant-Physician to the Middlesex Hospital, etc.

THE epidemic sore throat which, under the name of diphtheria, has engaged so much attention in this country during the last six years, is well known to be followed by nervous phenomena of a peculiar kind. These consist chiefly of impaired, perverted, or excessive sensibility, together with more or less complete paralysis of the muscles of the fauces, pharynx, tongue, lips, extremities, trunk, and neck: the frequency of the occurrence of these symptoms in the several sets of muscles being nearly in accordance with the order in which I have named them,—those of the fauces being the most, and those of the neck the least frequently affected.

During the last few months I have had the opportunity of carefully watching the course of some of these nerve-affections consequent on diphtheria, in the cases of several patients who have been under treatment in the Middlesex Hospital. These cases constitute a group of great practical interest, and form the basis of the present communication; but in order to avoid interrupting the thread of the general remarks I shall found on them, I have placed the cases at the end of the paper.

It should be clearly understood that I do not mean to infer that every attack of diphtheria is followed by one or more of these nervous disorders, nor to assert that their frequency or intensity is invariably proportional to the severity of the primary disease; for, on the one hand, patients sometimes recover perfectly from even severe attacks of diphtheria without experiencing any of these subsequent ailments, and, on the other hand, these nerve-affections sometimes follow where the previous sore throat has been comparatively mild. Notwithstanding these necessary qualifications, there is, however, no doubt that, as a general rule, the more severe cases of diphtheria are followed by one or more of these nerve-affections, and that, other things being equal, their intensity is generally found to be greater or less in proportion to that of the primary disease.

A brief period of convalescence usually intervenes between the disappearance of the primary, and the appearance of these secondary, symptoms of diphtheria. If the case have been treated in an hospital, the patient may even, during this intervening period, have been discharged as well; and several cases have fallen under my notice in private practice, in which patients who had apparently recovered, and had been sent from home for change of air, have subsequently fallen into a helpless condition from the accession of diphtherial paralysis. In Case 4 (Wiseman), the patient had returned to his work before the manifestation of the impairment of sight, which, as will be seen in the report of his case, was the beginning of his nervous disorders. The duration of this intervening period of apparent convalescence is uncertain; it does not generally exceed a few days, but it may occasionally, as in Case 5 (Hawker), extend to several weeks. The fact of the frequent occurrence of this interval between the subsidence of the primary disease and the accession of the secondary nerve-affections is the more important, because it shows that the latter can by no means be entirely attributable to debility or anæmia, seeing that patients have often during this interval begun in some degree to regain flesh and strength, and yet have not escaped the subsequent accession of paralytic symptoms. Neither can these nerve-affections be considered as attributable to the albuminuria which so often accompanies the acute stage of diphtheria, seeing that this symptom has also for the most part either disappeared, or at least greatly diminished, previous to their accession. Thus, in Case 1 (Mufford), there was a copious deposit of albumen in the urine during the last days of January, but it had nearly disappeared on the 11th of February, when the patient's voice became of a nasal character, and a mere trace of it was found on 16th February, when the tip of the tongue and the fingers began to be paralyzed. In Case 3 (Davis), the urine contained much albumen at the time he first came under observation, but the quantity had much diminished by 24th March, and it had entirely disappeared before 14th April, although the nervous symptoms, from which he suffered so severely, did not reach their greatest intensity till 12th May. In Case 2 (Bunkall), albuminuria was likewise found on the admission of the patient into the hospital, 17th December, and the presence of much albumen in the urine was noted on 28th December; but it had diminished to a mere trace by the 10th January, and then disappeared, although the nervous disorder did not subside until nearly a month later.

These nerve-affections do not at once attain their maximum of intensity, but are progressive, although their progress even in the same sets of muscles is seldom quite uniform. For example, the grasping power of the hands will vary somewhat from day to day, as in Case 5 (Hawker), or the power of using the lower limbs will vary, so that a patient who could scarcely walk at a certain date may be much better able to do so a few days later, and yet retro-

grade to the former, or even a worse condition, at a subsequent period.

If several of the sets of muscles which I have enumerated should be attacked in the same case they do not become affected all at once, but in succession,—the faucial or pharyngeal muscles being almost invariably the first to suffer, next the sight becomes impaired, and, subsequently, the muscles of the tongue, of the lips, and of the upper and lower extremities become affected in the order in which I have named them, though it by no means follows that all of them should be affected in the same individual. Thus, in Case 3 (Davis), paralysis of pharyngeal muscles set in on 22d March; a few days later the sight became seriously impaired; but it was not until 23d April that the patient's speech became so inarticulate that he could scarcely make himself understood, and the paralysis of the lower extremities did not attain its maximum of intensity until 12th May. Again, in Case 2 (Bunkall), unequivocal symptoms of paralysis of the faucial muscles were noted on 4th January. Two days later the patient became unable to read even large type, but it was not till towards the end of the month that the paralysis of the lower extremities reached its climax. In Case 4 (Wiseman), the patient was able to walk up stairs on his admission to the hospital, 18th March, his sight having become affected early in February, and his tongue shortly afterwards; and it was not until a week later, March 25, that he lost all power of locomotion.

The muscles of the fauces are by far the most frequent, as well as the earliest, seat of nerve-disorder after diphtheria. I have seen them attacked in a great many cases in which the rest of the muscular system either entirely escaped or was so slightly affected that the paralytic symptoms were attributed to mere debility. Paralysis generally affects the muscles on both sides of the fauces, but not always in the same degree; and sometimes the muscles on one side have quite regained their power while those on the other side remain motionless. On looking into the throat in cases of paralysis of the fauces after diphtheria, the velum pendulum palati is seen to hang relaxed and motionless. If the patient be desired to take a forcible inspiration, or to articulate the word "Ah!" it still remains immovable, and is not excited to action even by the passage of food, which, consequently, often, if it be of a liquid nature, passes upwards through the nostrils, instead of taking its natural course downwards through the pharynx. Anæsthesia has co-existed with the paralytic affection of the fauces in all the cases that have come under my observation: these organs, naturally so sensitive, become altogether insensible and callous even to repeated and forcible pricks with the nib of a pen. A snuffling and more or less imperfect articulation accompanies this affection of the fauces. In rare instances, as in Case 3 (Davis), the speech becomes so inarticulate as to be almost unintelligible. This affection of the speech and regurgitation of liquids through the nostrils, in consequence of

paralysis of the faucial muscles, must be discriminated from the hoarseness of voice and the return of fluids through the nostrils which often occur during the acute stage of diphtheria, and arise, as in ordinary quinsy, from the swollen and painful state of the fauces impeding the natural action of the parts. It is worthy of note, that the paralysis and anæsthesia are sometimes more complete on that side of the fauces which was most severely affected in the early stage of the disease. This was well exemplified in Cases 2 and 3 (Bunkall and Davis), in both of whom the right side of the throat suffered more severely than the left from the diphtheria and also from the subsequent nerve-affection. The same relation between the two stages of the disease was observed as regards the tongue in Case 1 (Mufford), in whom the right tonsil and right side of the uvula were covered with a dense membranous exudation, while the left remained comparatively free, and in whom the right side of the tongue was subsequently less sensitive than the left. Sometimes the muscles of the pharynx are also paralyzed, and there is then more or less difficulty in swallowing. I have several times seen this to an alarming extent; but in the present group of cases there was only slight dysphagia in Case 2 (Bunkall), who was compelled at one period of his illness to wash solid food down his throat with liquids; and in Case 5 (Hawker), who complained of difficulty in swallowing, obliging him to endeavour to jerk, or, as he termed it, "to bolt" the food down his throat.

Next to the affection of the fauces, impairment of vision, probably due to paralysis of the ciliary muscle, is perhaps the most frequent of the nerve-affections consequent on diphtheria. It sometimes comes on very suddenly, as in Case 2 (Bunkall), where the patient could distinctly read ordinary newspaper type on Saturday 4th January, and two days later was unable to read a word of the largest print found in the ward. The same account of the suddenness of his loss of sight was given by Wiseman (Case 4), who, on returning to work after his illness, was able to follow his occupation for two days, but was compelled to discontinue it on account of failing sight on the third day. But although patients suffering from this affection are often unable to read, they have, in all the cases which have come under my notice, been able to see distant objects with more or less accuracy. Thus, at the very time when Bunkall (Case 2) could not with unassisted sight read a book held at the ordinary distance from the eyes, he was able to distinguish perfectly a painted inscription on the wall at the further end of the ward, and could even, with the help of convex spectacles, read small print with tolerable facility. I have verified the same fact in a great many other cases during the last four years, and of late I have further observed that the pupil of the eye is dilated and acts sluggishly for a day or two before the sight becomes sensibly impaired; and in Case 2 (Bunkall), the pupils were for a day or two almost immovable under the stimulus of bright daylight. The dilatation

of the pupils also continues for some days, and often for a longer time after the sight has been regained. It is evident from the above details that the impairment of vision in these cases is not caused by any permanent change of structure in the eye, but is due to a temporary want of that adjusting power which enables the eye to accommodate itself to the discernment of near objects.¹

The tongue and lips are also, as I have already stated, very frequently the seat of nerve-disorder after diphtheria; there is formication of the tongue, or of the lips and tongue,—this abnormal sensation in the latter organ being sometimes described by patients as a sense of scalding, accompanied by numbness, coldness, and impaired power of movement. These symptoms begin for the most part simultaneously in the lips and tip of the tongue, and gradually extend upwards towards the dorsum and root of the latter organ; this was well seen in Case 2 (Bunkall). In Case 4 (Wiseman), the tongue was cold, and there was inability to move it; and in Case 1 (Mufford), the sense of taste was lost during the existence of the paralysis and anæsthesia of the tongue. In Case 2 (Bunkall), the muscles of the cheeks were likewise paralyzed, so as to disable him from whistling or blowing out a candle.

The limbs not unfrequently suffer from nerve-affection after diphtheria; they did so more or less in all the five cases which form the basis of this paper, and in all of them the disorder either began first in the upper, or at the same time in both the upper and lower extremities. The affection of the limbs comprises more or less complete paralysis and anæsthesia, besides tenderness and abnormal sensations, such as formication and a perception of tightness in the fleshy parts. In Case 5 (Hawker), there were also convulsive movements, resembling chorea, when the patient attempted to use the limbs. Just as the sense of scalding and numbness already described always begin in the tip of the tongue, and subsequently spread upwards along the organ, so also these affections of the limbs are at their commencement peripheral. Tingling is experienced in the tips of the fingers, accompanied by numbness rendering the patient unable to pick up small objects; presently these symptoms extend to the wrists and upwards to the elbows, and even to the shoulders, being especially felt, however, on the palmar surface of the hands. The ailment runs a like course in the lower extremities, but also frequently extends to the muscles of the lower part of the back and of the abdomen as high as the umbilicus. The limbs affected at first feel heavy and feeble, and a sensation of coldness often exists in them throughout the duration of the paralysis. As the ailment progresses, the anæs-

¹ Since writing the above, I have seen a case in which the adjusting power was for a time more impaired in one eye than in the other. Objects were very indistinctly seen by the patient at a distance of from 8 to 10 inches from the eyes; at a further distance they were seen double, and at a still greater distance single, and with comparative distinctness.

thesia renders the sense of touch so imperfect, that, both in endeavouring to walk and to use the hands, the patient is compelled to direct his movements by the eye. The sense of numbness is pretty constantly present in these cases, but the formication is chiefly, perhaps only, felt when efforts are made to move the affected limbs. If the paralysis continue for any length of time, the muscles concerned become flabby and sometimes very much emaciated, and their strength becomes so much impaired that patients who can move the affected limbs freely in bed often walk with much difficulty, or are even unable to stand, their limbs bending under them in the effort, so that, unless supported, they fall to the ground. Very often this loss of power and numbness are accompanied by increased sensibility of particular parts of the affected limbs. There is tenderness of the soles of the feet, of the calves of the legs, or of the fleshy parts of the arms; besides this general tenderness, pressure of the instep between the finger and thumb often causes acute pain, with convulsive starting of the leg and foot; and pressure along the large nerves of the arm and thigh, especially the sciatic and median nerves, is attended by pain or acute tenderness, as shown in Case 3 (Davis). In Case 4 (Wiseman), there was very considerable pain on percussion over the dorsal and lumbar vertebræ, and also tenderness on pressure by the sides of the vertebræ, from the lower dorsal region downwards. In the severest cases of diphtherial paralysis and anæsthesia, a sense of tightness is often experienced as if the parts were firmly bandaged. This does not usually occur till the patient is beginning to mend, and is then often very troublesome, affecting sometimes only one set of limbs, but extending in other cases to the arms, legs, and abdomen, as will be seen by reference to Cases 3, 4, and 5. Patients occasionally speak of their limbs as swollen, but this is an error arising from the sense of constriction above described, as is proved by the fact that the feeling of swelling is often worst where the limbs, in consequence of emaciation, are much smaller than in health. The paralysis in some cases assumes a more or less hemiplegic character, as in Case 5 (Hawker), but I have seen no instance in which one side being paralyzed the other remained entirely unaffected.

Nerve-affections of a graver character than any of those exemplified in the present group of cases, sometimes, though not frequently, follow diphtheria, and several even fatal cases have fallen under my notice in private practice. In three of these latter, death was caused by failure of the action of the heart; in one of them it was sudden, apparently from syncope; in the others, more gradual, the pulse becoming slower and slower, until, in one instance, it fell below thirty beats in the minute. I have also seen one case in which, when the patient appeared to be convalescent, vomiting supervened, and proved fatal in a few days from exhaustion. Fortunately, however, such cases are rare, and the great majority of

sufferers from diphtherial nerve-affections, under good management, ultimately recover their former health and strength, like those whose cases are related in this paper.

These ailments are best managed on general principles, and require no special mode of treatment; but I have found rest in bed, until convalescence had become thoroughly established, a most important aid towards a quick recovery even in the slighter cases. Generous diet and a liberal allowance of wine or malt liquor, or occasionally even of brandy, are always necessary,—the quantities being, of course, in each case regulated according to the state of the patient. Tonics, especially steel and quinine, or the mineral acids, are almost always required from the first appearance of the nerve-symptoms; and *nux vomica* or *strychnia* have in my hands proved most valuable remedies; but I have in no case found them to be of use until after the complete development of the paralytic affection. When this had taken place, I have usually combined them with the other tonics, which they need not supersede. In cases attended by obstinate constipation, I have found a combination of compound extract of colocynth with extract of *nux vomica*,—in the proportion of two or three grains of the former with one-third of a grain of the latter,—and about two grains of the extract of conium, the most effective aperient. The daily application of dry-cupping glasses along the back, on either side of the spine, appeared to be of essential benefit in Case 4 (Wiseman).

The five following cases, arranged in the order of their admission into the hospital, are those on which the foregoing remarks are chiefly founded. The first of them I had not the opportunity of seeing, and the report is taken from notes supplied to me by Mr Spurgin, one of the clinical assistants; the other four are abridged from my own notes of almost daily observation, supplemented, as regards Cases 2, 3, and 4, from the clinical case books, which were kindly placed at my disposal for that purpose, by my colleagues Drs Stewart and Thompson, who had those patients under their care.

CASE 1.—Job Mufford, aged 20, shoemaker, was admitted into the Middlesex Hospital, under the care of Dr Thompson, on 17th January 1861. Is of spare habit, small muscular development, dusky complexion, and somewhat below middle height. Has never been robust, but, excepting several attacks of ague in childhood and occasional epistaxis, has not suffered from any particular illness until the present time. About a week previous to admission, he had a feverish attack, attended with sore throat and considerable difficulty in deglutition. On the fourth day of his illness, violent epistaxis supervened, and continued at intervals until the morning of his admission, when he was found to be suffering from severe faucial diphtheria, the uvula and right tonsil being covered with a dense membranous exudation; pulse 80, soft, small, and very compressible; urine, sp. gr. 1025, free from albumen. Two days later (19th January), there was likewise a slight filmy coating over the left tonsil. On the 22d, this coating had almost disappeared from the left tonsil, the uvula was now also quite free from exudation, and the false membrane on the right tonsil was clearing away. This day, for the first time, urine found to be albuminous,

sp. gr. 1020. On the 26th, the exudation had disappeared, all but a few small patches on the right tonsil; the pulse was 68, small and weak, and the quantity of albumen in the urine had largely increased. On the 29th, albuminuria still continued, and the patient now complained of weakness in the left arm, and of pain extending from the elbow to the shoulder joint: these symptoms were, however, of very short duration. From this time he made slow progress until 11th February, when the albumen in the urine had diminished to a very small quantity; his voice, however, about this date, began to assume a nasal character. On 16th February, he complained of numbness and insensibility at the tips of the fingers, and also in the lips and tongue, the sense of taste being so much impaired as to prevent his distinguishing different kinds of food. The tongue was covered with a whitish fur anteriorly; posteriorly, but chiefly on the right side, with a rusty grey coloured coating; pulse, 104, weak; appetite good; voice still intensely nasal; urine, sp. gr. 1014, contained now only a trace of albumen. *18th February.* Sensibility of lips and fingers improving; right side of mouth and tongue less sensitive than left; right side of tongue still coated; voice less nasal. *2d March.* The patient complained of a sense of tingling and numbness in the feet and hands; tongue still furred, but chiefly on the right side. *5th March.* Discharged to the Convalescent Hospital at Walton-on-Thames.

CASE 2.—Joseph Bunkall, aged 18, butcher, was admitted into Founder Ward, under the care of Dr Thompson, on 17th December 1861. Had been taken ill on the 11th, and was found on admission to be suffering from well-marked diphtheria. There was an herpetic eruption around the mouth, and the fauces and tonsils were swollen, and, excepting the parts covered with exudation, were of a dusky red colour. The right half of the soft palate, the corresponding tonsil, and the greater part of the uvula, were covered with a dense mass of membranous exudation, loose and well-defined at its anterior and superior margin, but firmly attached to the subjacent textures at its lower and posterior border. This exudation was continuous, at the middle of the fauces, with a whiter, closely-adherent membrane, which reached, but did not cover, the left tonsil. There was slight sanious discharge from the nostrils, the voice was raucous, the glands beneath and at the angles of the lower jaw were greatly enlarged, and there was also considerable swelling of the neck, especially at the right side. The urine contained a large excess of phosphates and a trace of albumen. On the day following the admission of the patient, the large loose patch of exudation had separated and come away, and the case ran through the ordinary course of diphtheria, varying slightly from day to day, but on the whole progressing towards recovery. The patient was able to take nourishment freely, and no untoward symptoms supervened; but the albumen in the urine, at first a mere trace, increased in quantity until the 28th of December, when it was found in great excess. It varied in quantity from day to day, and at different periods of the twenty-four hours, but the amount did not begin steadily to decrease until about the 4th January, was still considerable on the 11th January, and it was not until the 16th January that it was again reduced to a trace, from which date it entirely disappeared. On the 24th of December, liquids began to regurgitate through the nostrils, and, on the 29th, a scanty papular eruption appeared on the face, especially on the right cheek. *4th January.* Sitting up; gait unsteady, and could not walk well without support; voice, which had become more natural, was now again affected, and had rather a snuffling than a raucous character; sight perfect, enabling the patient to read ordinary newspaper type with facility; pupils dilated and sluggish. *6th January.* The albumen in the urine greatly diminished; pulse 80, of moderate volume, but very compressible; the patient unable to distinguish the type which he read with ease on the 4th inst., but able to see distant objects clearly; pupils dilated, and almost insensible to light. *7th.* He complained of numbness, and a sensation of sealding or tingling in the tip of his tongue; liquids still regurgitated through the nostrils. *8th.* Pupils still dilated and sluggish, but less insensible to light than on the 6th inst.; the patient still

unable to read ordinary type with the unassisted sight, but able to do so with the aid of convex spectacles, and even without them able to see distant objects perfectly well. He complained of vertigo, of pain at the epigastrium, and of dyspnoea. *9th*. Fluids continued to regurgitate, and he was now unable to swallow solid food without drinking. Could read ordinary type when the book was held two feet from the eyes. Soft palate, nearly motionless in respiration and in articulating the word, "Ah!" and also quite insensible to the touch. *15th*. Swallowing easier, but still occasional return of fluids through the nostrils. Vision still much impaired as regards near objects unless aided by spectacles, tolerably good for distant objects. Voice still snuffling; soft palate insensible and nearly motionless; tingling and numbness of the tongue had extended nearly midway up the dorsum, and there was now also tingling of the lips and inability to inflate the cheeks with air. *17th*. Voice as before, but swallowing much improved. Pupils dilated and sluggish, and large print could only be read at a distance of four feet from the eye. Tingling of the anterior half of tongue and of the lips still continued; there was now also tingling and numbness in the fingers of both hands from the tips upwards to the second joint. *21st*. Up to this date, the throat had never been quite free from exudation, which was renewed from time to time, at first in a pellicular form, and latterly in that of a mere transparent glazing of the surface. This day the patient complained of stiffness about the articulation of the lower jaw. Solid food still appeared at times to stick in its passage downwards, till washed down with drink, and fluids still occasionally regurgitated through the nostrils. Pupils large, but more sensitive to light; sight for near objects still much impaired; voice as before; soft palate still insensible and nearly motionless, especially on the right side. Tingling of the tongue and lips nearly gone, but that of the fingers had now extended upwards to the wrists, accompanied by numbness and impaired sense of touch. Walk unsteady. *24th*. Sight, voice, power of deglutition, insensibility, and imperfect mobility of soft palate remained as on the 21st. Anæsthesia and tingling of the upper extremities had extended, especially on the right side, and having likewise commenced in the toes a day or two previously, they had now spread half-way along the feet. *30th*. No material change, but the patient had suffered occasionally from headache and vertigo. Deglutition easier, and regurgitation of fluids through the nostrils diminished. Vision still much impaired, but the patient could read distinctly with the aid of spectacles. Walk still unsteady, and the tingling and impaired sensibility of the lower extremities now reached as high as the knees. *3d February*. Deglutition and vision much improved, but the eyes easily fatigued, so that after a short trial of reading, the type became indistinct. Paralytic symptoms subsiding in the upper, but not as yet in the lower extremities, the patient still complaining much of tingling and aching in the calves. *9th*. In all respects much improved, but the right side of the soft palate still remained less movable than the left, and there was still unsteadiness of gait and tingling and anæsthesia of the lower limbs. *11th*. The patient was discharged to the Walton Convalescent Asylum. On his leaving that institution a month later, he attended at the hospital for some time as an out-patient under my care, and did not regain the perfect use and sensibility of the soft palate, or entirely recover his former health and strength until the middle of May.

CASE 3.—Frederick Davis, aged 16, shoemaker, was admitted under the care of Dr Thompson, March 17, 1862. Was said to have been always weakly, but had never suffered from sore throat until the present illness. Had been ill a week previous to his admission, when he was found to be suffering from severe diphtheria. His voice was raucous, and there was much albumen in the urine. On the 22d, his voice, which had been less hoarse the two previous days, began to assume a snuffling character, and for the first time liquids regurgitated through the nostrils. On the 24th, the quantity of albumen in the urine was already diminished. On the 25th, the pupils had become dilated, the voice continued nasal, and there was occasional regurgitation of fluids through the nostrils, the albuminuria still diminishing. On the 29th, there

had been steady and rapid improvement in the general health, but voice and deglutition remained as before. *3d April.* Patient complained of slight headache, and was unable to read for more than a few minutes at a time, the pupils being dilated and sluggish. *5th.* Sight more impaired. *10th.* Tingling and numbness over the whole palmar aspect of both hands. Urine now quite free from albumen. *15th.* No material change in the symptoms. *19th.* Voice more nasal, and the tingling and numbness of the hands had now extended above the wrists. *23d.* The fauces were insensible to the tickling of a feather, and there was scarcely any movement of the velum in respiration or in the articulation of the word, "Ah!" Voice so snuffling and inarticulate as to render the patient almost unintelligible. Formication and numbness of the feet, and likewise numbness and a sense of tightness in the lower part of the abdomen had supervened since the last report, and the limbs were so weak that the patient could scarcely stand, even when supporting himself with his hands on the bedstead and a chair. *26th.* Patient could read half a column of ordinary newspaper type held at a distance of twelve inches from the eyes; his sight then became dim and confused, and he was compelled to rest the eyes; pupils of normal size, and acted freely under the influence of light. *1st May.* Formication and numbness of the lower limbs had extended upwards, especially on the right side, on which the hip was now affected. *7th.* Sensibility and motor power of the soft palate improved, but chiefly on the left side, as was well seen on the patient's attempting to speak, when the right side of the velum remained nearly motionless, while on the left there was considerable action; articulation still very imperfect. Patient could not grasp firmly, the muscles of the fore-arms being almost powerless; he got out of bed with great difficulty, but could neither stand upright nor get into bed again without assistance, his limbs giving way under him in the attempt. Muscles of the hands, arms, and legs much emaciated. Numbness and tingling of the hands and feet still continued, but the numbness and sense of tightness in the lower part of the abdomen quite gone. Tenderness was found on pressure over the sciatic nerves, and along the course of the posterior tibial and median nerves, and more diffusely over the fleshy parts of the fore-arms. *12th.* Sensibility and motor power of the soft palate still imperfect, especially on the right side, but speech and general aspect greatly improved; pulse 76, of fair volume; slight increase of grasping power, but still much tingling in the hands. Patient quite unable to stand or use his legs, being worse in this respect than on the 7th. Tenderness along the course of the nerves as before, and pain was now also caused by squeezing the foot at the instep between the finger and thumb. *17th.* Further slight increase of grasping power; the patient could now stand upright, but was unable to walk. Formication was felt in the hands and feet but only on occasion of movement, and it then extended in the lower limbs upwards to both hips; there was now also a sense of constriction in both arms, as if they were tightly bandaged. *26th.* Sensibility of fauces much increased, but neither this nor motor power of the velum yet quite perfect. Further improvement in the grasping power of the hands, but the patient complained of a sense of roughness in the fingers when he touched anything; he was still powerless as regards walking, but able to move the limbs freely when in bed. The muscles of the extremities still much emaciated. Tenderness on pressure over the sciatic and median nerves continued. There was great tenderness with forcible starting of the limb on squeezing the instep near the junction of the first and second bones of the metatarsus with the tarsus, and the same sense of constriction and tightness in the feet as was complained of in the arms on the 17th inst. *3d June.* Grasping power slightly increased, but the muscles of the fore-arm even now were scarcely seen to contract with the effort. Patient still unable to walk, and still complained of the sense of tightness in the feet. Tenderness on pressure over the sciatic nerves continued: much tenderness on pressure of the calves and of the fleshy parts of the fore-arms, and an extreme degree of tenderness along the course of the median nerve in the right arm downwards towards the elbow. *11th.* Patient decidedly improving;

could walk round the table, though unsteadily, with the help of a stick in the other hand. 17th. General aspect greatly improved; patient could now stand and walk across the ward with no support but a stick. Muscles of hands, arms, and legs had gained both in volume and power. Sensation of roughness in the fingers on touching anything still continued. Numbness of lower limbs had disappeared, but acute pain was felt on pressure over the sciatic nerves, and tenderness as before on pressure of the calves. 21st June. Patient in almost all respects improved; the pain on pressure over the sciatic nerves alone rather increased than diminished. 26th. Patient rapidly improving, though he still walked a little unsteadily. All sense of formication, numbness, and tightness in the extremities had ceased; the tenderness in the calves was entirely gone, and the pain on pressure over the sciatic nerves very greatly diminished. The sensibility and motor power of the soft palate had been entirely regained, the sight had for some time been perfect, and the muscles of the limbs were gaining in bulk and firmness. Discharged to the Convalescent Asylum at Walton.

CASE 4.—Arthur Wiseman, aged 28, married, shoemaker, admitted under the care of Dr Stewart, 18th March 1862. Had been healthy previous to his present illness, which began on the 8th January, with catarrhal symptoms. On the following day his throat was sore, and he had much difficulty in swallowing. The first medical man who saw him called his complaint diphtheria, but a second who saw him a little later said it was ulcerated sore-throat. There can, however, be no doubt that the disease had been really diphtheria. In about a fortnight from the commencement of his illness, the throat began rapidly to amend, and in about a month the patient was able to return to work. He did not feel strong, but worked very well for two days, being able to see distinctly both to work and read. On the third day his sight became indistinct, as though from a mist floating before his eyes, and he was unable to read. The impairment of sight lasted three weeks, during which time, however, he discovered that he could read with the help of spectacles. His power of vision returned almost as suddenly as it had departed. About the same time that his sight became impaired, the patient had felt numbness in the tip of the tongue, which also felt cold, and he was unable to move it freely in the mouth. Besides this numbness and coldness, there was a sense of scalding or tingling in the tongue, which gradually extended upwards from the tip towards the dorsum. This affection of the tongue was before long accompanied by a sensation of choking in the throat, and by difficulty of speech. The duration of these symptoms is uncertain, as the patient could supply no accurate data by which it could be estimated. Next commenced numbness and formication in the tips of the fingers, which gradually, but slowly, crept upwards to the shoulders, and was attended by almost complete loss of power in the arms. About the same time, or very shortly afterwards, numbness, but unattended with tingling, commenced in the toes, and gradually crept up to the hips and to the lower part of the abdomen, causing his gait to be feeble and unsteady. Throughout the course of his illness, previous to the day of his admission into the hospital, he had never been confined to bed, and on that day, the 18th March, he walked up stairs to the ward, though with difficulty. On admission, he was pale and somewhat emaciated; countenance anxious; skin soft and warm; tongue flabby, indented by the teeth, and covered on the dorsum with a thin white fur. Pulse from 68 to 80, very excitable, sometimes irregular, and frequently intermitting. Pupils of equal size, dilated and sluggish under the influence of light. Occasional tinnitus aurium, swallowing difficult, and attended with a choking sensation. There was a feeling of constriction around the lower part of the abdomen, and the cutaneous sensibility was much impaired from the umbilicus downwards; there was also pain on percussion over the spine, and tenderness on pressure by the sides of the vertebræ, from the lower dorsal region downwards. The velum pendulum palati and the adjoining parts of the fauces were insensible to touch, and the velum hung relaxed and almost motionless in respiration, and in the attempt to articulate the word,

"Ah!" The urine was free from albumen. 26th. The patient had lost all power of walking, and could not even stand by the bedside, the left leg being manifestly still weaker than the right. No material change in the other symptoms. 12th April. Sensation and motor power of the soft palate still imperfect. Sight perfect, so that the patient could read ordinary type both at the normal distance and also at a distance of three feet from the eyes. Power of grasping with the hands much impaired; numbness and formication of the arms and numbness and loss of power in the legs have receded from the shoulders and hips downwards to the elbows and knees, but the numbness of the feet has rather increased. Patient unable to stand, but could lift his feet from the ground when seated. The right leg was now worse than the left: the right arm had throughout been more affected than the left. Muscles of the hands, arms, and legs much shrunken and emaciated. Sense of constriction round the abdomen diminished; tenderness in the vertebral region nearly gone. On moderate pressure of the feet between the finger and thumb, near the junction of the first and second metatarsal bones with the tarsus, there was tenderness and spasmodic retraction of the legs, especially of the left. There was also considerable tenderness on pressure over the sciatic nerves. 25th. Patient's appearance much improved; had gained flesh; had acquired considerable command of the left hand and arm, and somewhat increased power in the right hand and forearm; there was also some return of sensation in the fauces, and of motor power in the soft palate. Numbness of legs and feet, and hyperæsthesia and jerking of the limbs, on pressure of the instep between the finger and thumb, continued. 6th May. Patient had gained strength in both arms, could stand with great difficulty, but was unable to walk. The sense of constriction round the abdomen was nearly though not quite gone, but there was now the same feeling in the arms from the shoulders downwards to the wrists. 12th. Patient could now grasp firmly with both hands, the left being still the strongest, and could likewise raise himself from his chair, and stand without assistance. The lower limbs were free from formication while at rest, but when they were moved it was felt from the feet upwards to the hips. There was still tenderness on pressure over the sciatic nerves, but none in the vertebral region. 16th. Sensibility of the fauces appeared to be perfectly restored, but the motor power of the velum in articulation was still imperfect, especially on the right side. The sense of tightness in the arms remained, but in a less degree, and the patient had for the last two days experienced the same sensation in both legs from the knees downwards anteriorly to the toes and posteriorly to the heels. Formication of lower extremities on movement still considerable. 20th. Patient much improved in colour and general appearance, and was this day for the first time able to walk across the ward. 26th. Decided improvement in all respects, but patient still complained of the sense of constriction in both arms and legs as though they were bandaged. He could now walk, but unsteadily, and while doing so, required to look to his feet in order to direct their movements by the eye. 4th June. Had walked a mile and a quarter this day, but his limbs were still feeble, and his gait unsteady. Was gaining flesh, the muscles of the hands and arms especially having become stouter and firmer. The sense of constriction in the arms and of constriction and numbness in the legs greatly diminished during the last ten days. The tenderness on pressure over the sciatic nerves and the hyperæsthesia of the feet quite gone. Discharged to the Convalescent Asylum at Walton.

CASE 5.—James Hawker, aged 40, coachman, admitted under the care of Dr Greenhow, 15th September 1862. A strong healthy man until two years ago, when he had rheumatic fever; since which time he had been less robust and subject to slight rheumatic pains. Three months ago, had an attack of sore throat which lasted in a severe form two weeks, and in a slighter form for several weeks longer. From this illness he had never entirely recovered, though he had been able to return to work, and continue it until within a few days of his admission. About the time that he was attacked with sore throat, his four children had each a slight feverish attack, attended by redness of skin; and about fourteen

days later, he also had a feverish attack, lasting about a week, and attended by slight rash, followed by desquamation of the cuticle. Six weeks before his admission, being therefore about six weeks after the commencement of the sore throat, he experienced tingling and numbness of the fingers, which gradually spread over the whole hand, and were accompanied by great muscular debility. The numbness and loss of power gradually increased, and in two or three weeks after the appearance of these symptoms in the hands, they also began in the feet, and he became unable to walk beyond a short distance. He had also latterly a benumbed feeling over the lower part of the abdomen, a partial loss of power over the bladder, and a sense of constriction of the legs from the knees downwards, as though they were tightly bandaged. The numbness and loss of power in the hands meanwhile continued to increase till he was unable to hold the reins, and was compelled to give up his employment, about a week previous to his admission. *15th September.* On admission, the patient had numbness and formication in both hands, and also in the feet, extending upwards nearly to the knees. He complained also of a tight and pinched feeling in the lower extremities, which made walking difficult, and rendered his gait irregular and tottering, his limbs jerking about from his inability to direct their movements. The numbness of his feet was so great that he could never feel sure he had planted them on the ground unless he verified the fact by the eye. The power of grasping objects with the hands was very feeble, and when he extended them, the fingers were widely separated, and there were convulsive twitchings of a choreal character. He was unable either to dress himself or to cut up his food. He had a sensation of tightness and numbness over the lower half of the abdomen, and a partial loss of expulsive power over the bladder and rectum. He had also a difficulty in swallowing, which he said caused his food to "bolt down his throat." Was ordered good food, with a liberal allowance of wine and porter. *R.* Tinct. ferri sesquichlor. $\mathfrak{m}\text{xx}$.; acid. hydrochlor. dil. $\mathfrak{M}\text{x}$.; inf. quassiae, $\mathfrak{z}\text{j}$.; *M.* Ter die sum. *R.* Ext. nuc. vom. gr. $\frac{1}{2}$.; ext. coloc. co. gr. iii .; ext. conii. gr. ii .; *M.* Ft. pil. o. n. sum. *20th September.* Patient somewhat improved. Tightness of abdomen and difficulty in micturition quite gone. There was also less choreal twitching of the hands, and on extending them he could now bring his fingers close together. Tight feeling in the calves of the legs diminished, and he was able to walk better, though still with a staggering and shuffling gait. *R.* Tinct. ferri sesquichlor. $\mathfrak{m}\text{xx}$.; acid. hydrochl. dil. $\mathfrak{M}\text{x}$.; tinct. nucis vomice, $\mathfrak{M}\text{viii}$.; aq. cinnam., $\mathfrak{z}\text{i}$.; *M. T. d. s.* *25th.* Patient complained of pain in the loins, and had rather less use of his hands than at the date of last report, being again unable to bring his fingers together when the hands were extended. *28th.* Both legs felt as if tightly bound from the knees downwards. No material change in other symptoms. *2d October.* Patient not so well; complained of headache and vertigo. Numbness of hands increased. *Haust. magnes. co.* $\mathfrak{z}\text{i}$. ter die. $\mathfrak{z}\text{ii}$. ol. ricini cras mane. *4th.* Head symptoms increased; slight hemiplegia of right side; pulse slow (58); speech hesitating. *Pil. coloc. c. hyd. chlor. gr. x.* statim. *Haust. sennae co.* *9th.* Head symptoms and hemiplegia quite gone, leaving the patient in much the same state as before their accession. *R.* Tinct. nux. vom. $\mathfrak{M}\text{x}$.; inf. chyrett. $\mathfrak{z}\text{j}$. *M.* Ter die sum. *15th* Power over lower extremities considerably increased, and feeling of tightness diminished. Numbness of hands decreased, so that the patient was now able to button his waistcoat. *22d.* Decided improvement. *27th.* Power of locomotion rapidly increasing, but slight return of tingling in hands and fingers. *3d November.* Much better in all respects. Bowels now act daily without aperients. Muscular power of extremities nearly restored. Sense of tightness in legs almost gone, and very slight formication of the hands remaining. Patient was now quite able to dress and feed himself, and had full control over the movements of his hands and limbs. Discharged to the Walton Convalescent Asylum. At the end of a few weeks he showed himself at the hospital free from all traces of his illness.

ARTICLE II.—*On some Congenital Malformations of the Intestinal Canal.* By WILLIAM TURNER, M.B. (Lond.); F.R.C.S.E.; Senior Demonstrator of Anatomy, University of Edinburgh.

(Read before the Obstetrical Society of Edinburgh, 10th June 1863.)

CONGENITAL malformations of the intestinal canal are objects of considerable interest to the pathological anatomist. From their study much information may be derived not only of the changes in form, position, and relations which the canal goes through in the course of its development, but of the effects which may be produced on its growth and arrangement by intra-uterine inflammation, affecting either its serous coat or that of the adjacent abdominal wall or viscera.

Three cases of intestinal malformation having recently come under my notice, I purpose relating them to the Society this evening, with some remarks which have been suggested by a consideration of their peculiarities.

The first case to which I shall direct attention is a congenital malformation of the jejunum. The specimen was sent to me about a month ago by Dr Keiller, with a request that I would examine and note its anatomical characters, and communicate them to the Society. It consisted of the abdominal portion of the alimentary canal of a male infant which died twelve days after birth. The stomach was of small size, but normal in shape. Duodenum of usual form, but somewhat dilated. Jejunum, for a distance of 25 inches from its commencement, distended even above the size of the adult intestine; it then appeared to terminate abruptly in a rounded cul-de-sac. The distention was especially well marked for a few inches above the cul-de-sac. A closer examination of the intestine showed, however, that it did not terminate in this abrupt manner, for from the rounded end of this portion of greatly distended jejunum a delicate thread-like structure connected with the coats of the jejunum, but not communicating with its canal, was prolonged downwards for about $1\frac{1}{2}$ inch. It evidently represented a part of the jejunum atrophied almost to complete disappearance. Below this, again, for $1\frac{1}{2}$ inch, the gut was pervious, and formed a small loop, which had a diameter equal to the stem of a common tobacco-pipe. Beyond this loop was a second constriction, 2 inches long, similar to the one already described. Then the gut, again pervious, formed a second small loop; below which was a third constriction, $1\frac{1}{2}$ inch long, similar to the former ones. The rest of the jejunum and the whole of the ileum were arranged in the usual convoluted manner; their canal was pervious, but their diameter did not exceed that of the two small loops of gut between the three constricted thread-like portions. The mesentery, which corresponded to the three places where the gut presented the greatest amount of constriction, was puckered and shortened, and

those portions of it which supported the two short intermediate loops were more or less twisted.¹ I have looked carefully, but



without success, for any appearance of bands of adhesions at these spots, and Dr Thorold, by whom the post-mortem examination was made, has informed me that he saw no traces of old or recent lymph in these localities. An injection which I forced into the trunk of the superior mesenteric artery ran freely into those branches which supplied the bowel above and below the constrictions, but it did not enter into any vessels situated in the three constricted portions and the two small intermediate loops of the jejunum.

The large intestines were normal in their arrangement. Their diameter was about twice that of the ileum and lower end of the jejunum. The ilio-cæcal valve was well formed, and no obstruction existed at its orifice. The biliary and pancreatic ducts opened in the usual way into the duodenum. The jejunum, as far as the cul-de-sac, was distended with a dark brown liquid, which was prevented from passing any lower down, through the constriction already described. The coils of the small intestine contained a bluish-green slimy material, probably inspissated mucus. The valvulæ conniventes were small, the villi well developed. The large intestine contained a material not unlike that found in the lower end of the small. I may also mention that Dr Thorold noticed during the post-mortem examination that the spleen was subdivided into several distinct gland masses, situated partly at the cardiac end, and partly along the great curvature of the stomach.

The chief interest of this case will, I think, rest in the determination of the cause which produced the excessive atrophy I have

¹ *Explanation of Figure.*—*a*, Cul-de-sac. *b, b, b*, Thread-like constricted parts of jejunum. *c, c*, Two short intermediate loops. *d, d*, Shortened mesentery.

described, for its position so high up the canal puts it beyond the reach of successful operative interference. To what circumstances, then, are we to ascribe this malformation.

1st, Was it produced by a simple diminution of formative power at this spot, during the evolution of the coils of the small intestine out of the single loop of which the canal is at first formed? or,

2d, Was it due to a morbid process, probably inflammatory, set up at an early period of embryonic life, which produced a local or limited atrophy of the gut?

That the first named of these supposed causes may occasion atrophy of an organ, or part, is borne out by some of the cases which the records of pathology furnish us with. And such deficiencies in the development of a part especially occur in those localities in which a structure subservient only to the purposes of the fetal economy shrivels up and altogether or in part disappears. I may, in illustration of this statement, more especially refer to the numerous cases which have now been recorded,¹ in which a contraction of the aorta, amounting in some instances to a complete closure, has been met with at or just below the termination of the arch; localities which embryological research has taught us correspond in the one case to the place of junction of the fifth and fourth vascular arches, in the other to that of the right and left aortic roots. Now, in the natural development of the vessels, both the right aortic root and that part of the fifth left arch which constitutes the ductus arteriosus atrophy and disappear either altogether or partially. And in the cases of contraction of the aorta here referred to, the diminution of the calibre of this vessel seems to have been due to an extension to it of the same process by which the shrivelling up both of the ductus arteriosus and right aortic root is occasioned.

Connected with the canal of the intestine are certain appendicular embryonic structures which, in the ordinary course of development of the entire body, disappear. The vitelline duct is one of these structures. It is continuous with that part of the intestinal canal which subsequently becomes the ileum, its connexion with this portion of the bowel being indicated, even in some adults, by the occasional presence of a diverticulum. More commonly, however, it shrivels up and disappears. Now, it is quite possible to conceive that the atrophy may not be confined to the vitelline duct, but may be extended to the intestine at the spot to which the duct is connected. And thus the canal may become closed, or its further growth beyond the stage which it possessed when the atrophy of the duct commenced either retarded or altogether prevented.

Cases of intestinal obstruction have been recorded which appear to bear out this supposition; cases in which the obstruction had

¹ See an article by Dr Peacock in the *Medico-Chirurgical Review*, 1860, vol. xxv. p. 467; also my *Memoir on the Irregularities of the large Bloodvessels*, in the same *Journal*, October 1862, p. 466.

arisen from diminution in the size of the gut, without any evidence of inflammatory mischief. Such, in particular, seems to be the explanation one might give of the origin of an obstruction in the first of two cases recorded by Dr Carver.¹ An infant which died on the fourth day after birth had contraction of the ileum, beginning about 12 inches from its cœcal end, *i. e.*, at the place where with reason one might suppose the vitelline duct had been attached. And it is particularly noted in this case that there were no signs of inflammation either of the peritoneum or bowels. In a second case, an infant which died on the sixth day, there was a similar condition of the ileum, but it was complicated with acute peritonitis, ulceration, and perforation of the lower part of the ileum and cœcum. It appears probable, however, that in this case the atrophy of the intestine preceded the peritonitis rather than that the atrophy was a result of the inflammation.

But though disposed to look upon some cases of intestinal obstruction as occasioned by an extension to the bowel of the process of atrophy, which produces a shrivelling up of some of its embryonic appendicular structures, yet I do not think that the case now before us can be brought into the same category, for the jejunum has not at any period of its development a structure like the vitelline duct connected with its coats or continuous with its canal, serving merely an embryonic purpose and subsequently disappearing. I am inclined, therefore, to regard the inflammatory theory as the one to which the contraction and atrophy of the bowel ought in this case more probably to be referred. And that peritonitis is not unfrequently the cause of various malformations in the intestinal and other abdominal viscera has been satisfactorily established by Professor Simpson, in his well-known memoir "On the Inflammatory Origin of some Varieties of Hernia and Malformation in the Fœtus."² The shortened and somewhat puckered condition of the mesentery, corresponding to the thread-like contracted parts of the jejunum, exhibited, I think, indications of the effects of previous inflammation. And although it was noted that there was an absence of bands, either of old or recent adhesions, yet this of itself cannot be accepted as sufficient evidence against the theory of the inflammatory origin of this malformation; for, as was pointed out by Dr Simpson in the memoir already referred to, numerous experiments and observations have shown that old effused lymph or false membrane is often more or less entirely absorbed; and this opinion has since been confirmed by the observations of other pathologists.³

But conjoined with this puckered condition of the mesentery, and perhaps in some measure as a consequence of it, the two small loops of jejunum situated between the constricted thread-like portions

¹ British Medical Journal, 11th August 1860.

² Edinburgh Medical and Surgical Journal, vol. lii., 1839.

³ Kirkes, Medical Gazette, April 1849. Paget's Lectures, 2d Edit., p. 282.

were twisted upon the axes of their mesenteric attachments. Through this twisting not only was an injurious amount of pressure exercised upon the gut itself, between and immediately above and below these two loops, but the branches of the mesenteric artery passing to these parts of the bowel were evidently so compressed as to prevent the size running along them when I injected the mesenteric trunk.

Through the pressure exercised directly upon these parts of the intestine itself, as well as from the obstructed state of the arteries going to it, we may then in part account, I think, for the extreme degree of atrophy, amounting almost to complete disappearance, which it here presented. Torsion of the small intestine is in itself a matter of some interest; for, from a careful statistical inquiry into the different forms of intestinal obstruction, Dr Brinton has shown¹ that the large, much more frequently than the small, intestine is the seat of such axial twistings.

The difference between the appearance of the intestinal contents in the parts above and below the seat of obstruction was, of course, due to the biliary and pancreatic secretion being cut off from the lower end of the canal. Thus only the part above the obstruction had a bile-tinged colour, the bluish-green contents of the canal below being probably nothing more than inspissated mucus. So that by the division of the intestine into an upper and lower portion, a natural separation, to some extent at least, of the secretion poured into its cavity was produced.

The length of time which the child lived after birth, viz., twelve days, is accounted for by the stricture being so far down the jejunum as to allow of some amount of absorption through the intestinal villi to go on, and this notwithstanding the frequent vomiting which took place after the administration of food.

The cases to which I shall next direct the attention of the Society illustrate two forms of malposition of the cœcum.

In one, an adult male, the cœcum was not placed in its proper fossa, the right iliac, but was displaced upwards, and occupied the adjacent parts of the right lumbar and hypochondriac regions. Here it was not tied down closely to the abdominal wall, but possessed an extensive mesentery. It was therefore movable, and could be thrown across to the left side of the middle line. From it the colon proceeded, and, after making a sharp bend, passed almost immediately into the transverse colon. The ascending colon could hardly be said to exist. Occupying the right iliac fossa, passing upwards through it and the right lumbar region, was the terminal part of the ileum. It possessed in these regions the same relation to the abdominal wall which the cœcum and ascending colon normally have, and was fastened down by the peritoneum just as they are. In the upper part of the right lumbar region the ileum left the wall, acquired a distinct mesentery, passed forwards, and joined the cœcum.

¹ *Lancet*, May 21, 1859.

This form of displacement of the cœcum upwards, conjoined with absence of an ascending colon, although rare, has yet occasionally been observed by pathological anatomists. Dr Simpson (p. 35) refers to some cases which have been related in the older records of medicine, and he describes others of a similar nature which came under his own observation. Dr John Reid also saw a case in which the cœcum was placed in the right lumbar region.¹

This malposition of the commencement of the large intestine is completely to be explained on embryological grounds. It represents a condition which always exists at a certain period of embryonic life.

In the rotation of the two limbs of the primitive loop which represents, in the early weeks of intra-uterine life, the intestinal canal, the posterior limb out of which the cœcum is developed is thrown upwards, so that the cœcum lies in the middle line of the abdomen, or even a little to the left of that line, and in close relation to the under surface of the liver. As the development advances, the cœcum gradually passes into the right hypochondrium, and then descends through the right lumbar region into the right iliac fossa. This descent of the cœcum does not take place until a late period of foetal life. I have brought with me a foetus apparently between the fifth and sixth months, in which the cœcum situated in the right lumbar region is in close relation to the under surface of the liver. But its descent may be delayed even to almost the last month of intra-uterine life. In a foetus at the eighth month, the abdominal cavity of which I opened a short time ago, the cœcum was situated altogether in the right lumbar region, close to the lower end of the right kidney. The right iliac fossa was occupied by a coil of the ileum, which was tied to the back of the fossa by the peritoneum. The testicles had descended into the scrotum.

The ascending colon is therefore the part of the large intestine which is last formed, the space in which it is situated being provided for by the descent of the cœcum into the right iliac fossa.

The other case of malposition of the cœcum consisted in a displacement downwards into the cavity of the pelvis. It occurred in an aged female. The cœcum rested on the floor of the pelvis, and from it the colon ascended through the right iliac and lumbar regions, where it was tied down by the peritoneum, to the right hypochondrium, in which it became continuous with the transverse colon. Owing to the position of the cœcum, the lower end of the ileum also entered the pelvis, and passed to the right side of that cavity to join the large intestine. The cœcum and as much of the ascending colon (about two inches) as was placed in the pelvis were completely surrounded by peritoneum; so that they possessed considerable mobility, and could be thrown over to the left of the pelvis, or even drawn upwards into the cavity of the abdomen proper.

¹ Edinburgh Medical and Surgical Journal, vol. xlv. p. 72, 1836.

In this case we have an exactly opposite condition to that met with in the one previously described.

Instead of being arrested, the development was excessive, and the cœcum and ascending colon passed through their proper regions to one beyond. It is, I think, a rarer form than the displacement upwards. Dr John Reid has indeed (p. 72) related a closely corresponding case, and he refers to another recorded by Mr Annesley. The malposition would appear to have been occasioned by an excessive growth in the downward direction of the ascending colon, so that the cœcum was projected below its proper region into the pelvis. There was no appearance of peritoneal inflammation, no thickening of the membrane, or adhesions between it and the adjacent parts.

The cases of upward and downward malposition which I have now described are to be distinguished from those one sometimes meets with in which the cœcum is not firmly tied down to the right iliac fossa, but possesses a movable mesentery: for though, in the latter, the cœcum has some amount of mobility, so that it may temporarily undergo a change of place, yet its fossa is not, as in the former cases, permanently occupied by a part of another viscus.

ARTICLE III.—*Case of Ovariectomy.* By GEORGE BUCHANAN, A.M., M.D., Surgeon to the Glasgow Royal Infirmary, and Lecturer on Anatomy in Anderson's University.

I AM induced to publish notes of the following case, because I believe it is only by comparing the unsuccessful with the successful cases that a true estimate can be formed of the value of any operation.

Mrs P., aged 45, of spare habit, average health, menstruating regularly, the mother of two young men now eighteen and twenty years of age, had been the subject of an abdominal tumour for many years before it gave her any concern or forced her to apply for medical advice. In August 1862, she consulted Dr Lindsay, then Dr Pagan and Dr James Watson, and subsequently Professor Simpson of Edinburgh, who five months ago performed paracentesis, and drew off a large quantity of clear glairy fluid. The tapping did not altogether remove the tumour, which soon attained its former size, and rapidly enlarged. In April 1863, she was seen by Drs Drummond and Gairdner, who advised ovariectomy, and I was requested to visit her with the view of undertaking the operation. I found that there was a large ovarian cyst floating in peritoneal fluid, apparently not much bound down, and nothing appearing to contra-indicate its removal, I took the surgical management of the case.

On the 31st of May, I performed the operation in an apartment

heated to 70°, with the assistance of Professors Lister and Gairdner, and Drs Drummond, Lindsay, Forbes, Gibb, and Hamilton. It was the most serious surgical proceeding I ever undertook, and required the utmost caution and patience to avoid interfering with the important parts involved. An incision, about five inches in length, was made from the umbilicus to near the pubis, and the tissues were carefully divided down to the peritoneum, which was bulged out with the abdominal fluid. When the cavity was opened up with a probe-pointed bistoury, a large quantity of amber-coloured fluid escaped; then the smooth wall of the ovarian cyst rested against the incision. Hot, moist flannel cloths were at once applied against the peritoneal surfaces, and then I explored the abdomen, and found that the tumour consisted of two parts, —a large, fluctuating, movable cyst, with some adhesions to the omentum and abdominal walls, which, however, gave way under the fingers; and, connected to that free one, another large, rounded, elastic mass, occupying the lower part of the hypogastric region, and dipping into the pelvis, to the brim of which strong adhesions attached it. The two tumours were connected by a neck about the thickness of the wrist. In breaking up some of the adhesions of the movable tumour, some cysts, with very thin walls, gave way, when a clear fluid, like the white of egg, flowed from the wound. I first proceeded to remove the upper cyst, and, by pressing it forward against the wall of the abdomen, I got it fixed till I had thrust the hollow trocar into it. A quantity of clear viscid fluid escaped; but the tumour was an aggregation of very small thin cysts, so that, although I pushed the trocar in various directions, it only partially diminished the bulk, and I had to push the tumour through the wound before I could get it emptied. Fearing a vascular connexion, I placed the clamp on the neck by which it was attached, and cut off the cyst, which was about the size of a man's head.

The removal of the lower tumour was a much more arduous undertaking. The adhesions were so firm that they had to be carefully cut with a scalpel, so that I had to make a regular dissection of the wall of the cyst, from the uterus, rectum, and pelvic walls. The posterior and upper part of the tumour was adherent to the omentum and part of the intestine, and at the side of the pelvis was closely attached to the iliac vessels. The part which dipped into the pelvis, between the rectum and uterus, gave the most trouble, because its vascular connexions were considerable; and one large vein came so much in the way that I placed two ligatures upon it, and cut the vessel in the interval. By tearing with the handle of the knife, stretching and cutting a little, the tumour was at last dislodged, and hung out of the wound by a pedicle about three inches broad, connected with the left broad ligament. A part of this being only peritoneum, I got it reduced to two inches by breaking through the part in which there were no

vessels, and placed the clamp on the narrow neck. When the tumour was cut away, it was found that there was no bleeding from the stump. Several vessels in the wall of the pelvis were ligatured. I now examined the right ovary, and found growing from it a small multilocular cyst, of a nature similar to the large one removed, about the size of a hen's egg. This small tumour could not be raised to the level of the wound in the abdominal walls without great stretching; I therefore passed a double silver wire through its pedicle, and tied two ends tight down to the pedicle on each side, and cut off the tumour and ovary, bringing the wires out through the incision. I now poured a small quantity of warm water into the pelvis, and, with a warm, moist sponge, completely cleared away from the peritoneal cavity every drop of blood or ovarian fluid which might have escaped. All the time that the peritoneum was exposed, warm, moist flannel cloths were applied to the abdomen. The abdominal wound was now united with silver sutures, great care being taken to bring the peritoneal incision into apposition by its surfaces, as recommended by Mr Spencer Wells. The stump of the pedicle fixed by the clamp, the silver wires, and ligatures, were brought out at the bottom of the incision. A few strips of adhesive bandage, a warm compress and bandage were applied, and the patient was removed to bed, much exhausted by the length of the operation and large quantity of chloroform administered. She was put under the influence of chloroform at half-past eleven, and placed in bed at half-past one. All that time she was kept insensible by the anæsthetic, although, twice, when the breathing became very feeble, I had to suspend the proceedings, cover her up with blankets, and admit a current of fresh air by opening the window, which at once restored her sufficiently to allow me to proceed. The tumours and fluid contents which could be collected filled a vessel capable of containing two and a half gallons; but a considerable quantity of fluid escaped, and was sponged away during the first part of the operation. The two tumours first removed were parts of one large multilocular cyst with an hour-glass constriction, at which point the walls were thicker than at other places. The contained cysts were thin-walled, and semi-transparent, did not communicate with each other, and the fluid contents consisted of a viscid clear substance closely resembling the white of egg. The peritoneal fluid which escaped at first from the incision was quite different, being a clear amber-coloured liquid.

When the patient was removed to bed, thirty drops of laudanum were administered, and she lay comparatively easy all day. In the evening I found her calm; pulse 120; considerable thirst, which she was directed to relieve by sucking ice. Sixty drops of laudanum.

1st June.—Slept at intervals during the night, and is comfortable this morning; little pain in wound; pulse 100, of fair strength.

10 P. M.—Is tired and restless. Thirty drops of Battley's solution of opium.

2d June, 10 A. M.—Has slept well, and feels very comfortable; no pain; pulse 96. 10 P. M.—Has been easy all day; somewhat troubled with flatus towards evening; pulse 112; Battley, 30 drops.

3d June, 10 A. M.—Did not sleep much, but is quite easy; pulse 112; Battley, 35 drops. 10 P. M.—Drowsy and quiet; another opiate.

4th June, 10 A. M.—Has rested well, and still continues sleepy; pulse 96; tongue still clean; skin cool. 10 P. M.—Flatus has annoyed her a good deal, and the abdomen is somewhat swollen; has passed a good deal of flatus, and has always been relieved by it; breathing somewhat slower than natural; no opiate was given.

5th June.—Patient was wakened out of a sound sleep by a pain somewhat like cramp in the stomach. She vomited a mouthful of sour mucus. I was called at 4 A. M., and found abdomen distended and pulse 120. Countenance anxious. An injection of salt and water was given, and a large quantity of flatus was expelled, as also a quantity of dark fecal matter. A sinapism was applied to the epigastrium, and warmth to the abdomen. By these means she was much relieved, and an opiate being given, she slept a good deal during the day. 10 P. M.—Still drowsy, but abdomen soft and free from pain. Oxide of bismuth, gr. x., and a full opiate were administered.

6th June.—Slept soundly most of the night, but respiration now rather slow. Pulse 140, rather weak. Some subsultus. Is still drowsy; but on being spoken to wakens up and assists herself in bed. She will accept of no assistance in turning, and occasionally alters her position for her own comfort, and to admit of the bandage being adjusted. The wound seems nearly united, and no pus is seen in any part. 10 P. M.—Has been much in the same state all day. Expresses herself as easy, except from the flatus, with which her abdomen is still distended. Pulse 140, soft. Repeat opiate.

7th June.—Had a quiet night, but is tired this morning, and a good deal of uneasiness from distention of abdomen. An injection of salt and water brought away a copious feculent stool, and she passed urine without any effort or pain. Pulse still 140. Instead of an opiate a suppository of morphia was introduced.

8th June.—So much relief followed the former injection that another was ordered, which brought away a copious watery and feculent stool. Pulse 140. 10 P. M.—Was much relieved by the effects of the injection. Abdomen soft and not tender, except a little over epigastrium. Pulse now 120. An opiate was given.

9th June.—Slept quietly all night with a few intervals; breathing easily. No pain and but little tenderness. Abdomen distended, but soft. Another injection brought away a great deal of flatus and two feculent motions. 10 P. M.—Has vomited a little yellow bitter fluid. Pain in epigastrium. Bismuth gr. x.; then another opiate.

10th June.—Slept from two till six A. M. quietly, and complains of

no pain; is drowsy and still inclined to sleep. 10 P.M.—Has slept most of the day, and feels easy, but is weak. Pulse 128. The clamp came away, leaving the pedicle in the lower part of the wound. The incision is firmly united at every part except the small hole at the bottom through which the ligatures and strings of the pedicle project. A little pus trickled out along the ligatures.

11th June.—Is weak and tired. Pulse 128, weak. Tongue, which has been covered with brown fur the last two days, though moist, is now red and irritable.

12th June.—Has vomited during the night, and had several watery stools. Pulse 140, weak. Abdomen distended, and bulged-in loins, where dulness and fluctuation is distinct. The peritoneum evidently containing fluid, I opened up the lower part of the wound by pushing my finger into the hole through which the ligatures were brought out, and tearing open the united tissues till I reached the abdominal cavity, from which nearly a pint of yellow serum with a few white flakes escaped. A poultice was then applied over the lower part of the belly. This was attended with some temporary relief, but the patient gradually became weaker, and died at 11 P.M. on the thirteenth day after the operation.

In addition to the above history it must be added that the urine was drawn off by the catheter every six or eight hours, and that the diet consisted during the whole time of small quantities of beef-tea, and afterwards of milk given every hour or two hours, with two or three teaspoonfuls of brandy in the intervals between the times at which she got the other nourishment. She also took with relish a little tea and toast, a bit of sweetbread and chicken; but the last three days she was unable to take anything but the milk and brandy.

On post-mortem examination it was found that the wound had united most perfectly, except the small part where the ligatures were brought out. The peritoneal union was most perfect, the two edges being so closely united that the line of the incision could with difficulty be detected. There were evidences of pretty general peritonitis. In the pelvis, the bladder, uterus, and rectum were glued together by lymph pretty well organized; but about the pedicle of the right ovary a good deal of peasoup-looking fluid indicated the low form of the peritoneal inflammation. In many places the intestinal covering was highly inflamed, and the intestines were covered with flakes of unorganized lymph.

In conclusion, I have to state that it surprised both myself and those who witnessed the operation, that the patient survived so long after such a formidable proceeding, and the amount of shock occasioned by the time necessary to complete it with safety; while the extent of the reparative process disclosed at the post-mortem examination corroborates the opinion, that adhesions, when not too extensive, are by no means a contra-indication to the performance of ovariectomy.

ARTICLE IV.—*Two Cases of Dislocation of the Cervical Vertebrae.*
By CHARLES DAVID DOIG, Surgeon, Seafield.

WHEN the opposing surfaces of an articulation have their normal anatomical relations changed, the term applied to the displacement is Dislocation. This state of matters may occur, accidentally, from violence, as from a fall or blow; occasionally also, though rarely, from excessive muscular action. It may result, secondarily, from disease, as in the instance of hip-joint and spinal malady.

The hip-joint, ankle-joint, shoulder-joint, and elbow-joint, are the parts most frequently thus deranged. When a vertebra is dislocated, the injury is very often conjoined with fracture; this complication depending on the peculiar structure of the bones of the vertebral column, and on the strength of their ligamentous attachments.

The results of a dislocation are of two kinds,—immediate and secondary. When the extremities are implicated, there occur immobility, deformity, and unfitness for use. Dislocation of the vertebrae induces paraplegia, more or less extensive, according to the situation of the injury. Further, if the injury affect the upper part of the cord, the functions of respiration and deglutition are also interfered with.

CASE 1.—Dislocation of fifth cervical vertebra; paraplegia; death. While A. W., æt. 53, stoker, was in the act of examining the water in the boiler of a steam-engine, on the morning of the 9th of August, the governor caught his overall and tossed him about. When seen at half-past ten o'clock, he was almost dead. He was found to have sustained a lacerated wound (about one inch long) at the outer canthus of the left eye, a lacerated wound near the angle of the left lower jaw, abrasions on the left side of the face, abrasions on both sides of the neck, a contusion of the neck, a semi-circular lacerated wound (about two inches long) near the left elbow, and several ecchymoses on other parts of the body. He complained of pain in the neck, and of inability to move it. He had lost the power of motion and of sensation in the trunk, and in both lower extremities. He could raise the arms a little, but could not move the lower extremities. He was quite sensible, but was unable to swallow anything save fluid. He spoke in a whisper, and breathed with difficulty; the pulse was slow and full. He was ordered a purge consisting of calomel and compound extract of colocynth.

10th.—There was a perceptible fulness about the neck. He complained of pain in the neck, and of discomfort in the back and legs. He could only take fluid; gasped for breath; could move neither the arms nor legs. There was very deficient sensa-

tion in every part of the body below the middle of the sternum; the tongue was moist and brown; the bowels had not acted. He had made no water.

The urine was withdrawn by means of the catheter, six leeches were directed to be applied to the neck, a purgative enema was administered, and he was directed to take one drop of croton oil every second hour till his bowels had been moved. On taking the second dose of the oil, nausea became so great as almost to kill him; further use of the drug was therefore discontinued.

11th.—Urine was withdrawn by means of the catheter. The bowels had not acted. He was ordered calomel and compound extract of colocynth in divided doses.

12th.—Since yesterday he has taken nine grains of calomel and fifteen grains of compound extract of colocynth, and the bowels have acted for the first time since the accident. Urine, of small quantity and ammoniacal, was withdrawn by means of the catheter.

13th.—After gasping a few times, he expired exhausted at ten minutes to nine A. M.

14th.—*Autopsy.*—There was considerable bloody effusion into the cellular and muscular tissue around the cervical vertebræ. The fifth cervical vertebra was completely separated and displaced from the sixth; the ligaments were ruptured. The cord was torn nearly across, and dark bloody effusion extended down the spinal canal.

CASE 2.—Dislocation and fracture of fifth cervical vertebra; paraplegia; death. J. A., æt. 37, porter, engaged at work on board a steamboat, on the 11th of July, lost his balance and fell to the bottom of the hold. The accident induced insensibility. On recovering from this condition, he complained of excruciating pain between the shoulders. Both inferior extremities were paralyzed. Respiration was difficult—deglutition impeded.

12th.—Complained of constant pain in the spine. Had a burning sensation in both arms. The abdomen was insensible to the touch. Could raise the right, but not the left arm. Had loss of power of left arm, and of both lower extremities. Bowels confined; passed no urine; had slept none since he sustained the injury. Tongue dry and white; thirst complained of. Pulse, 72, weak; towards evening, 65. He was ordered a turpentine enema.

14th.—Pulse, 80. Had slept but little. The turpentine enema was repeated, and he was ordered a drop of tincture of aconite every second hour.

15th.—He could raise the left arm as far as his head, but gradually lost all power of it, as well as of feeling over the thorax. Died exhausted at 9 A. M.

Autopsy.—The fifth cervical vertebra was separated and displaced from the sixth. The body of the fifth was roughened on its inferior surface, and its spinous and transverse processes were broken. The ligaments connecting the vertebræ were torn through.

A small quantity of coagulum and a little effusion surrounded the cord, but there was no injury or morbid condition of its substance.

Remarks. — In both patients, paraplegia was consequent on pressure on the spinal cord, produced by a dislocated condition of the fifth and sixth cervical vertebræ. The existence of effusion in the spinal canal aided in obstructing the functions of the nervous column. In one case the cord was entire; in the other it was injured. In both cases the functions of the brain remained unimpaired to the last. On the other hand, sensation and motion were diminished or null in nearly every part of the body below the sternum. The faculty of speech became impaired, deglutition difficult, and respiration gasping instead of equable. Constipation was excessive. In one case twelve grains of calomel and one scruple of compound extract of colocynth, a purgative enema, and two drops of croton oil, were administered before an alvine evacuation was effected. The secretion of urine almost ceased, and what there was became ammoniacal and required to be removed mechanically. An ammoniacal condition of the urine is not peculiar to this form of palsy; it is also seen in paralysis dependent on other causes, as well as in cases of typhus attended with much cerebral oppression.

In both instances, death took place from exhaustion on the fourth day. The lungs, heart, and blood were in a normal condition; but the nervous energy had been destroyed by direct injury of the cord in the upper part of the neck.

In the one case the lesion was caused by a blow or blows; in the other by a fall. In both cases the violence was of an extreme character.

ARTICLE V.—*On the Characters, Actions, and Therapeutical Uses of the Ordeal Bean of Calabar* (*Physostigma venenosum*, Balfour).
By THOMAS R. FRASER, M.D., Assistant to the Professor of Materia Medica, Edinburgh University; late Resident Physician, Royal Infirmary, Edinburgh.

(Continued from page 56.)

SECTION III.—PREPARATIONS.

The powdered kernel may be exhausted by spirits of wine, of proof or rectified strength.

Water and acetic acid have not been satisfactorily shown to dissolve any of the active principles. A few trials were made with both, and the results were that, by the process of procolation, efficient preparations could be obtained with neither; the infusion, by maceration with water, suspended such variable quantities of the starchy and leguminous constituents as to be quite unfit for any experimental purpose.

Rectified spirit has been usually employed as the menstruum in the therapeutic portion of this investigation, and a tincture of known strength was uniformly administered. The following is the formula for its preparation :—Take of the kernel, in the form of fine powder, ℥j. ; rectified spirit, ℥ij. Place the kernel and one ounce of the spirit in a carefully covered vessel, and allow to remain for forty-eight hours. Pack in a procolator, pour in what spirit may be left in the vessel, and add the remaining ounce of spirit. When this has ceased to escape from the procolator, pass as much more spirit through as may be required to obtain two ounces of a golden yellow tincture.

This preparation is so far objectionable, that the kernel is not exhausted by the quantity of spirit used ; yet it appears preferable to one obtained by reducing to a certain standard, by distillation, a tincture obtained with a much larger proportion of spirit.

I have found five minims of this tincture a good dose with which to commence the administration. This appears to possess the activity of three grains of the kernel, as far as can be judged by the effects produced. The dose may be trebled without pushing the physiological action to any extreme. The kernel can only be exhausted by employing a much larger proportion of spirit. By using twelve ounces of rectified spirit with one ounce of powdered kernel, distilling off about eight ounces, and evaporating the remainder, first to a syrupy consistence, in a vapour-bath, and then by spontaneous evaporation, twenty-one grains of an extract of considerable consistence may be obtained, or a proportion of 4·375 per cent. This extract has a deep brown colour, and a peculiar, sweetish, and disagreeable odour, for which I can find no comparison. Its actions differ only in intensity from those of the kernel and tincture.

In the physiological portion of this investigation, the syrupy extract mentioned above was largely employed, and it is one of the preparations recommended in the application of *Physostigma* to ophthalmic medicine. A preparation has also been employed of the extract evaporated to a firm consistence, and partially dissolved and suspended in distilled water. I have used such a preparation, obtained by acting with one drachm of distilled water on five grains of firm extract, representing 120 grains of the kernel, one minim of which possesses the activity of two grains of kernel. Of this a small drop, rather less than a minim, will maintain a contracted condition of the pupil for five days. This preparation has the objection of being extremely inelegant, as a large portion of the extract is not dissolved, and renders the fluid muddy.

SECTION IV.—THERAPEUTICS.

We are entitled to infer that the important physiological actions of the kernel of *Physostigma* may be employed with the greatest advantage in the treatment of disease.

Its special action on the spinal cord, and the result, though not entirely conclusive, of the experiment with this substance and strychnia, seem to indicate that it may be of service in all hyperæsthetic conditions of the cord. In tetanus, whether *centric* or *eccentric*, the morbidly excited condition of the spinal system may be allayed. In epilepsy, the investigations of Schröder van der Kolk have so far determined the accompanying pathological changes, that we would be even more sanguine of success from its employment. The *sedative* action on the heart will also, very probably, prove of service. Five minims of the tincture usually shows an influence on the circulation; but in almost every case this dose has been required to be considerably increased before a decided and permanent effect could be produced. When administering it with this view, I have been principally guided in my selection of cases by the condition of the pulse,—a pulse in anywise feeble being considered a decided contra-indication, while one that was strong, rapid, and hard, was considered a true indication for the employment of the tincture. I have found this action of value in erysipelas, delirium tremens, febricula, acute bronchitis, and rheumatic fever, and have detailed a few cases from a number in which this treatment was tried.

CASE 1.—Erysipelas. 15th Nov. 1861. Walter S., æt. 38. Married. Out-door labourer. Patient had been attacked four days previously with rigors, but continued his work till yesterday morning. When first seen, at 10 A.M., pulse 96; full and hard. Whole face, and especially on right side, red and puffy. Lips and eyelids much swollen. The inflammation extended to the scalp, ears, and neck. Tongue with slight fur. Throat and fauces red and tender. Patient has been extremely restless, had very little sleep for two previous nights, and was delirious last night.—R. Tinct. Physostigmatis, min. vii.; Aquæ, ʒj.; Ft. haust. statim sumendus. A little flour was also ordered to be dusted over the inflamed parts.

8 P.M.—Pulse 94. Attendant states that the restlessness has diminished.—Repet. Tinct. min. vii.

16th Nov.—10 A.M. Pulse 90, still full and hard. Patient slept for a short time during the night. A little delirium.—Repet. Tinct. Physostigmatis, min. vii.

8 P.M.—Pulse 86. Slept two hours this afternoon. Inflammation is decidedly less. Bowels freely opened.—Repet. Tinct., min. viij.

19th Nov.—10 A.M. Pulse 78, soft and slightly irregular. Slept well last night, and without delirium. Desquamation commenced on face.—Repet. Tinct. Physost., min. viij.

8 P.M.—Pulse 69, soft, irregular, and intermittent. Patient has slept during the day. Natural features recognisable. Tenderness of fauces gone. On being asked, patient described a sensation in the epigastrium, as of a ball rolling about, and followed by eructation. This has been perceived half-an-hour after the two last doses.—Repet. Tinct. Physost., min. viij.

18th Nov.—10 A.M. Pulse 62, soft, irregular, and intermittent. Inflammatory swelling almost gone; a little puffiness still about the ears. Patient thinks himself quite well, but is unable to stand from loss of power in the legs and thighs, and feels his arms weak and almost powerless.—Hab. Tinct. Physostig., min. v.

8 P.M.—Patient has been out of bed nearly all day. Pulse 65, soft and intermitting. Complains of extreme weakness. Erysipelas quite gone.—

Omit. Tinct. Physostig. The pulse gradually rose to 70, and became much stronger in a few days. The muscular weakness disappeared in two days.

CASE 2.—Delirium tremens. W. J., æt. 36. Labourer employed at the Caledonian Distillery. Robust and plethoric. Has been lately indulging in large quantities of whisky, and has not taken any food for two days.

27th Dec.—8 P.M. Found patient with a pulse of 90, full and hard. Tongue trembling when protruded; moist, and with slight fur. Symptoms had begun two days previously. Last night patient had not slept, and was so delirious as to get out of bed frequently, notwithstanding the care of his wife and a male relative.—B. Tinct. Physostigmatis, min. viij.; Statim sum.

28th Dec.—10 A.M. Pulse 84, irregular, but hard and full. Patient slept a little, and was quiet and without delirium all night.—Hab. min. xij.; Statim.

8 P.M.—Pulse 76, soft and irregular. Patient had slept two hours after the last dose. No delirium. Bowels have been freely opened.—Repetatur.

29th Dec.—10 A.M. Pulse 68, soft and intermitting. Patient slept all night, and woke apparently recovered. Complains of great weakness of limbs when attempts are made to walk.—Omit. Tinct. Physos. Patient was soon in perfect health.

CASE 3. Delirium tremens. (This case was communicated in a fuller form to the Royal Medical Society of Edinburgh on the 13th of March 1863.) D. M.P., æt. 43, a strongly built labouring-man. Admitted to Ward VI. of the Royal Infirmary on the 28th of February, with a very limited pneumonia of the base of the right lung. In addition to the signs of pneumonia, a peculiar restless manner was observed. The eyes wandered incessantly from one object to another, questions were answered in an abrupt manner, and the patient was constantly making incoherent and unconnected remarks. A history was then obtained of seven days' constant drinking which had terminated the night before admission, and during which the patient had drunk at least six quarts of ale and three or four gills of whisky daily. Ordered an expectorant mixture.

1st March.—10 A.M. Pulse 120, full and bounding. Tongue dry, with a grey fur; trembling when protruded. Skin dry and warm. Patient has taken no food since admission. His hand trembles when raised. Did not sleep last night, and was noisy. Has now delusions.

8 P.M.—Pulse 126, full, bounding, and somewhat hard. Has neither slept nor taken food since last report. The excited manner, indistinct articulation, and trembling of the hands and tongue continue. He attempts to escape from imaginary persecutors, occasionally cries out, and says he is being thrashed. Pupils about two and a half lines in diameter, nearly equal, and mobile. Ordered min. vj. of the tincture of Physostigma in water, which was taken at 9 P.M.

10 P.M.—Pulse 112, still hard and bounding.—Hab. min. x.

11 P.M.—Pulse 90, rather more compressible. Patient is quieter, and says he feels better.—Repet.

12 P.M. Pulse 78, soft and regular. Patient slept shortly after the last dose, and is now in a sound sleep, so much so, that the raising of the bed-clothes to count his pulse did not waken him. He continued asleep till 1.30, when he awoke, but was very quiet, and again slept for four hours.

2d March.—10 A.M. Pulse 84, soft and regular. Skin covered with profuse perspiration. Tongue moist, with a grey fur, still trembling a little. Patient can hold out his hand with comparative steadiness. *The pupils are contracted to about one line in diameter*, but no impairment of vision can be discerned. Patient is able to read small print at the distance of six inches, and can count small objects at the other end of a large ward. Delusions gone. Patient took some breakfast.

9 P.M.—Pulse 86.—Hab. min. vj.

3d March.—10 A.M. Pulse 78. Patient slept last night as well as when in perfect health, and was found with a clean tongue, moist skin, and absence of every symptom of delirium tremens.

I should be inclined to recommend this tincture only in such cases as the above; never in weak patients, with a feeble pulse, and the other characteristics of the asthenic variety of this disease. All the symptoms in delirium tremens may be referred to the brain and heart. The most prominent symptom, and, in the present condition of pathology, the first indication for treatment, is the persistent sleeplessness. Sleep may be said to consist of a cessation of mental activity, or at least of a repose of the functions of relation, or those connecting us with external life, accompanied by a diminution in the circulatory force. It is probable that the condition of the circulation is dependent on that of the whole body, and especially of the nervous system, a *diminution* in the *demand* for blood being followed by a *diminution* in the *supply*. In this class of cases, therefore, we may explain the action of this agent by its influence on the heart. The abnormal condition of the cerebrum produced by alcohol requires and occasions an increase in the supply of blood, to produce which the heart is stimulated to contract with greater frequency. The *Physostigma*, through its influence on the nervous system, reduces the excited cardiac action; and, whatever be the condition of the circulatory *vis a fronte*, or *demand* for blood, the *vis a tergo*, or principal agent in *supplying* this demand, being controlled, the disposition to wakefulness is conquered by the large supply of blood necessary to great cerebral action being prevented. The morbid mental activity is thus removed, and a condition favourable to subsidence into sleep produced.¹

CASE 4. — Febricula. A. M'L., æt. 29. Factory girl. Unmarried. 9th Feb. 1862.—10 A.M. Patient complained last night of coldness and shivering, general lassitude, and pains in her back. This morning she is unable to leave her bed. Pulse 126, strong and hard. Tongue dry. General surface parched and hot. Patient complains of thirst.—Ordered min. vj. of the tincture of *Physostigma* in a little water.

3 P.M.—Pulse 123.—Ordered min. x.

8 P.M.—Pulse 86. Bowels have been freely opened. Tongue slightly moist. Skin soft, with a little perspiration. Repeat min. x.

10th Feb.—10 A.M. Pulse 78. Patient perspired freely during the night. Headache and pains gone.—Ordered min. xij. of tinct. of *Physos*.

8 P.M.—Pulse 72. Copious perspiration.—Repet.

11th Feb.—10 A.M. Pulse 74, irregular, and of normal strength. Tongue nearly clean; surface moist.—Rep. min. xij.

8 P.M.—Pulse 68, soft and irregular. Bowels have again moved.—Hab. Tinct., min. x.

12th Feb.—10 A.M. Pulse 61, feeble and irregular. Patient slept extremely well. Tongue clean and moist. Patient feels quite well.—Omit. Tinct. Patient was out of bed, and complained of general muscular weakness. Bowels have been moved. No further treatment was required. Pulse rose to about 72, but continued weak and irregular for several days. The muscular weakness disappeared in three days. The epigastric sensation was observed in this case also.

¹ This view of the pathology of delirium tremens is supported by the able Inquiry into the Physiology of Sleep, by Arthur E. Durham,—Guy's Hospital Reports, 3d series, vol. vi. 1860, p. 149-173.

CASE 5.—Acute bronchitis. E. M., æt. 40. Married. Stout and robust.

2d March 1862.—8 P.M. Has been unwell for three days. Pulse 110, full and strong. Respirations 37. Frequent cough, and expectoration of considerable quantities of frothy mucus. Tongue dry and loaded. General surface dry and hot. Great thirst and considerable headache. *Physical signs*.—Percussion normal. Large and small crepitation over left lung, especially towards apex. Rhonchus over right side.—Hab. Tinct. Physostigmatis, min. x.

3d March.—10 A.M. Pulse 90, rather softer. Respirations 34. Bowels have been thrice moved since last night, and stools liquid. Patient vomited about two hours after taking the tincture, and this was followed by copious perspiration. Tongue cleaner, but still loaded. General surface moist.—Hab. Tinct., min. vj.

8 P.M.—Pulse 96. Respirations 34. Bowels have been moved once since last visit. Patient speaks spontaneously of a sensation of muscular weakness, and, on being questioned, admits having the epigastric sensation and eructation, which commenced about ten minutes after each dose, and continued for half an hour.—Habeat min. x.

4th March.—10 A.M. Pulse 84, very soft and compressible. Respirations 28. Had no sickness nor vomiting. Bowels have moved once since last night. Headache quite gone. Cough much relieved. Rhonchus cannot be heard on right side. No change in left lung.—Repet. min. x.

8 P.M.—Pulse 72, soft and irregular. Respirations 28. Bowels have not been moved. Surface moist. Tongue moist and nearly clean. Appetite much improved. Patient again speaks of the eructation.—Repet. min. x.

5th March.—10 A.M. Pulse 70. Respirations 30. The small crepitation is confined to the left apex, the large extends over the left side.—Repet. min. x.

8 P.M.—Pulse 66, very soft and intermittent. Respirations 27. Tongue moist and quite clean. General surface very moist; indeed, wet. Patient is very much opposed to having the medicine stopped, as she thinks it is of advantage to her.—Hab. min. viij.

6th March.—10 A.M. Pulse 68, soft and irregular. Respiration 25. Pyrexia entirely disappeared. Tongue clean. Physical signs in the lungs have very much diminished,—a limited amount of large crepitation being heard at the left apex. Muscular prostration very great.—Omit. Tinct.

This case terminated in complete recovery in about four days more, and without any further treatment. The muscular weakness disappeared in that time.

From the severity of the case and the marked effects of the treatment, I cannot avoid concluding that the tincture of physostigma was of service in producing the favourable result.

Cathartic Action.—We have seen that a decided action was exerted on the bowels in several of these cases, and this in conformity with the results obtained by experiments on the lower animals. It is possible that this action may be found of some service, but I have not specially tested its value. If Physostigma can be so employed, I think it will prove of peculiar service, from the absence in the remedy of any nauseous taste, and from the cathartic action being produced without tenesmus, and rather with the association of effects of a sedative nature.

The *Anæsthetic Action* may be applied to the treatment of all nervous irritations. I have employed it with great advantage in various neuralgic affections, and in irritable stomach. It probably acts by producing a local change in the nerves of the affected region, which interferes with their power of receiving or of conducting im-

pressions. That it does not depend on any constitutional action of the kernel appears probable from the absence of any appreciable constitutional symptom.

An agent can remove painful impressions in only three ways,—1st, by an influence exerted on the tissues which cause the pain by their abnormal connexion with the sensitive nerve,—as in the swelling of inflammation; 2d, by an influence exerted on the organ which receives the impressions,—the cerebrum; and, 3d, by an influence exerted on the sentient nerve-fibre itself, or on its power of conducting sensation. We have no facts to support the first cause of the sedative action in the present instance, and it is extremely improbable; the second is disproved by the absence of cerebral symptoms; and every probability exists in favour of the last. I have employed both the tincture and the alcoholic extract, the former seeming to me the preferable form of application. Half a drachm to one drachm of the tincture, rubbed on the seat of suffering for fifteen minutes, will remove severe pain for an interval of about two hours, and an ultimate cure may be produced by repeating the application for a limited number of times. The following case will illustrate this action:—

CASE 6.—J. S., æt. 38. Married. Labourer and maltsman. *5th March 1862.*—8 P.M. Afflicted with severe pain in the lumbar region, aggravated by movements. Pain commenced suddenly on the 1st March while patient was working, after a cold wetting. It was at first intermittent, but so severe during the paroxysm as to prevent him from working. The pain has become much worse during the last two days. It is now constant, though with occasional aggravations of severity, and has obliged the patient to remain in bed. He says he has not slept for two nights. When seen, patient was lying on his back, and appeared to avoid making the slightest movement. The pain was confined to the lumbar region, and was most severe on the right side. —One drachm of the tincture of *Physostigma* was ordered to be rubbed on the painful part for fifteen minutes.

7th March.—10 A.M. Patient is considerably better, can move a little, and slept during the night. He says the pain was completely removed about half an hour after the application, but returned in a milder form in three hours. The same quantity was ordered to be rubbed in immediately, and this repeated at 7 P.M.

8 P.M.—Patient is sitting before the fire without the slightest pain.

The application was repeated once, and on the following day the patient returned to his work. In this case the epigastric sensation was produced by the external application.

I have employed this tincture as an anodyne in various other neuralgic affections. A slight degree of smarting is produced during the application, and a little redness generally remains, but this seems entirely dependent on the alcohol of the tincture. I have also administered it internally as a sedative in malignant disease of the uterus, and in neuralgia of the lower extremities caused by the pressure of a large uterine fibrous tumour, in both cases with marked relief, and without the disagreeable after-effects of opium.

The following case will illustrate the sedative action on the stomach :—

CASE 7.—Irritable stomach. I. M.G., æt. 19. Domestic servant. Has been unwell for a few days, with loss of appetite and a feeling of oppression in the epigastrium.

9th Nov.—9 P.M. To-day, immediately after breakfast, patient had severe vomiting, and this was repeated after very moderate meals at dinner and tea. Vomited matter consisted of almost unchanged food. Pulse 70. Tongue moist, with a little fur. Complains of great nausea.—Hab. Tinct. *Physostigmatis*, min. vii.

10th Nov.—10 A.M. Pulse 66, feeble and compressible. Nausea still complained of, but a little breakfast was retained. Patient experienced the epigastric sensation and eructation.—Repet. min. vii.

4 P.M.—Pulse 60, soft and irregular. Patient had a good appetite at 2 P.M., and took and retained her usual dinner. Nausea entirely absent. Complains of inability to work from weakness in the lower and upper extremities.—Omit. Tinct. Sickness and vomiting did not recur, and the weakness very soon disappeared.

Hypnotic Action.—*Physostigma* may in certain cases act as a hypnotic, though we have no proof of its possessing any specific or primary influence in producing sleep. Its action as an anodyne may account for the sleep in nearly all the cases where this ensued. The previous want of sleep had been due to the irritation of the pain, and by removing such irritation, the patient was allowed to repose. This was well illustrated in Case 6. It is also possible, however, that the sedative action on the heart may exert more direct influence in causing sleep, by producing that moderated activity of the circulation which invariably precedes and accompanies it.¹ In this way we may explain the sleep produced in Cases 1 and 2. In both of these the action has been to remove unnatural obstacles to the production of sleep; whether it can induce the same effect in a natural and healthy condition of the system is a matter of doubt. In Professor Christison's experiment, sleep followed two hours after the dose had been taken; but this was of a most imperfect character, "the mind being so active all the while that" Dr Christison "was not conscious of having been asleep." In no experiment which I performed on myself did I observe the slightest tendency to drowsiness.

Topical.—A topical action which will prove of some service is the influence exerted on the pupils. The power which *Physostigma* possesses in contracting the pupils, when applied immediately to the eye, is very great; and the discovery of this is the more important as no substance was previously known to have such an action. In mydriasis, whether dependent on the over-action of belladonna, or as a symptom of amaurosis, especially the hydrocephalic variety; in the treatment of iritis, and of inflammations of neighbouring structures, where the prevention of adhesions may be more successfully secured by an alternation of contraction with dilatation than by dilatation alone; in all cases in which a change

¹ See Durham's paper in Guy's Hospital Reports.

in the position of the iris is indicated, as in injuries of the eyeball, with displacement of the iris; as well as in many other cases which will suggest themselves to the ophthalmist, this agent deserves, at least, a trial. The local application is followed by no inflammatory symptoms, and should therefore be preferred to the usual stimulating applications which have been employed to produce contraction. I should recommend for this purpose the alcoholic extract, in the form of either the syrupy extract, or the more concentrated extract mixed with a definite proportion of water.

This preparation, however modified, must be always, to a certain extent, uncertain in the degree of its action, but this is no important objection, as the contraction of the pupil can be produced by a very minute portion of the syrupy extract. The only caution is to employ as small a quantity as possible. A preparation of unvarying strength will only be obtained when the active principle of *Physostigma* is discovered. For details of the symptoms produced by the local application to the conjunctiva, see Experiment 5, Actions on Man.

The only other external remedial use which I shall refer to, is in the treatment of various parasitic affections of the skin. This mode of application has not been thoroughly tested by me; but I can bear testimony to the great efficacy of the extract in killing the members of one species of parasitic animals. The infusion of the kernel is commonly employed by the natives of Calabar to remove lice from their persons. I obtained, through the ready instrumentality of a dispensary patient, some very large specimens of the *pediculus capitis*, and found that they were killed in five or six minutes after a small quantity of extract had been brought in contact with them.

Toxicology.—This department of the investigation is as yet almost untouched. The only case which can be referred to is one which has been already mentioned as having occurred in Glasgow to two servant girls. They each ate, through curiosity, about five grains of the kernel. The symptoms which followed in one of those cases have been kindly narrated for me by Dr Maclaren of Glasgow. The woman "chewed and swallowed a piece about the size of a green pea. A very few minutes thereafter she felt sickish, and *had the feeling as if a ball were coming up to the throat*. She went out to the street on an errand, and felt stupid and giddy as she walked along, with a sensation of *a great feebleness over the whole body, rendering progression a matter of difficulty*. She did not vomit; but about an hour afterwards, being recommended to swallow a quantity of hot water, vomiting came on pretty freely. She went to bed and slept tolerably, but next morning, and for two days afterwards, she felt feeble and out of sorts."

This case is interesting, in so far as it gives an unbiassed account of the symptoms produced by a moderate quantity of the kernel. The emetic effect of the hot water had probably no influence in

diminishing the action of the five or six grains which were taken, as it was not given for more than an hour afterwards. Coffee is peculiarly useful in getting rid of the languor and headache which are produced when somewhat large doses are taken. This was experienced by Dr Christison; and my own observation was invariably in support of his statement.

(*To be continued.*)

ARTICLE VI.—*Cases of Diphtheria, with some Remarks on the Treatment of Croup and of the Throat Affection in Scarlatina.* By Dr G. HAMILTON, Falkirk.

DURING the last thirty years in which I have practised in this district, I have occasionally seen cases in which I have observed the throat inflamed, with lymph effused and adherent to a greater or less extent; but it has been only at a comparatively recent date that I have seen what I consider to be true cases of diphtheria, and I have known it to prevail epidemically here only since the commencement of the present year. This epidemic, too, has been as yet of a partial, and, in the great majority of the cases, of a comparatively mild character; so that I have had but limited opportunities of studying the disease. A practitioner, however, like myself, who has seen a good deal of the kindred diseases, scarlatina and croup, especially looking at the modifications which these affections sustain in successive seasons and epidemics, can, I have little doubt, at once apply many valuable lessons which he has learned from them to the treatment of the until lately comparatively rare disease, diphtheria.

The only epidemic disease I had known of immediately before the appearance of diphtheria was a mild form of remittent fever, lasting generally from a fortnight to three weeks, with occasionally a few cases having much of the character of typhus. Of the exanthemata, during the autumn and winter months of this season, I had seen almost nothing, and I have heard of only a very few cases of mild scarlatina. I have not, therefore, had any reason to conclude that the prevalence of the diphtheritic affection was in any way connected with, or dependent upon, the diffusion of the scarlatina poison. My patients affected with diphtheria have been mostly in the town of Falkirk, and within short distances east and west. North and south I have seen few cases, although the population, northwards especially, is considerable. One family, in an isolated and apparently remarkably healthy locality, suffered most. All the individuals living in the house, seven in number, were affected, and the two youngest were cut off. This house was kept scrupulously clean, but the rooms were small; and this circumstance often has seemed to me, where other sanitary conditions have been satis-

factory, the main cause of the spreading of contagious diseases. In several other families two, three, and four members were seized simultaneously, or in rapid succession.

A good number of the milder cases, I have no doubt, were passed over as attacks of influenza with inflamed throat, and really, until the number in a family taken ill, or the gravity of the affection, attracted attention, such appeared to be their character. I noticed, however, that many of this description were more persistent than attacks of influenza; and though no lymph could at first be detected on the throat, it yet, if watched for, was seen to appear in a few days. The approaches of the disease were remarkably insidious; in many cases, the throat, especially in children, being, I am persuaded, affected for some days before the case excited any uneasiness. Indeed, had it not been for the strong tendency which the disease showed to involve the air passages, a large majority of the patients seen by me would have been considered as in no danger whatever. And here I may remark, that perhaps the study of a not too severe type of a disease, although necessarily affording an incomplete view of all its phenomena, has some practical advantages, in so far as it enables us to apply and test the effects of remedies that otherwise would be useless. In *very* malignant examples of scarlatina or of cholera, for instance, we may say that any kind of treatment is of almost no avail. The patient from the first is struck down by a force against which the vital powers are utterly unable to contend. I have seen only one case of diphtheria in which the general system was so rapidly prostrated as quickly to place it beyond any hopes of successful treatment, and even it I was for some time in doubt whether I should class as diphtheritic at all.

As the case is interesting in several respects, I shall give a short account of it. The mother of this young man, eighteen years of age, had been attending occasionally for some days previous to the 7th of February, when he felt unwell, in a family where there was diphtheria; but her own house, in which her son lived, was in another locality, distant about a mile and a half, near which I am not aware that any diphtheria had shown itself. On 8th February I saw him, and thought the affection trifling, as any connexion with the cases of diphtheria his mother had been amongst did not strike me as likely. The throat was complained of very slightly. I examined it, but could see no lymph on it, and very little wrong with it, except perhaps a congested slightly swollen condition. There was also a little fulness externally at the angles of the jaws, the affection looking to me as not unlike the trifling attack called "mumps." I thought so lightly of the case, that on the 9th I did not see him. On the 10th, I found him much worse. The throat was not at all complained of; but the pulse had become quick, hard, and bounding; the breathing was oppressed, and there was considerable fever,—all seeming to me to indicate a commencing pneumonic attack. I immediately ordered an antimonial emetic, to be followed by a large

sinapism to the chest, and had the satisfaction of finding in the evening the breathing quite relieved, and the pulse quiet. On the 11th, the breathing and throat continued easy, but the nervous system had now become seriously affected. There had been constant raving during the night, which continued, with a tendency to coma, very like what we see in the more advanced stage of typhus fever. There was also on one cheek a defined red patch, something like what I had noticed on the lips of some diphtherial patients. On the 12th, the nervous symptoms continued, along with great general prostration and failure of the pulse. The head was shaved and a blister applied, and stimulants and support were given freely; but, in spite of all attempts to keep up the strength, he sank early on the morning of the 13th, being the sixth day from the commencement of his illness. At the time this case occurred, I entered it in my notes as being only of a suspicious character, from the strong resemblance it had to a case of diphtheria which I had under my care in the autumn of 1861. Subsequently, I was confirmed as to the correctness of my suspicions, from the occurrence of three other cases in the same house. The sister of this patient, who slept in the same bed as he had done, was seized, within ten days of his death, with inflamed throat and considerable general fever; and on 26th February, the mother, who appeared to have been the original medium of conveying the infection, was also taken ill, and suffered from a pretty severe and well-marked attack of diphtheria, the tonsils, uvula, and soft palate being all more or less covered with lymph. It commenced with feverishness and a full hard quick pulse, with some oppression in the breathing; and in these respects very much resembled the attacks of influenza with slight chest affection, of which most practitioners in this country, I imagine, have seen so much for a good many years past, and which, though of little moment, if promptly and vigorously treated at their commencement, if neglected, occasionally pass on to more serious inflammatory attacks. Immediately on seeing this patient, I prescribed an antimonial emetic, in which I have great confidence in such cases, and next day the breathing was quite relieved, but the pulse was 120, though soft. The other symptoms were attended to, as I shall have to mention immediately; but twelve to fourteen days elapsed before the patient was convalescent.

As a contrast to the severe and fatal case I have given, I will mention another, as an example of a class so apparently trifling that it attracts little or no attention, from friends or practitioners, until experience has taught both some severe lessons; and which places in our hands a stage of the disease anterior to the formidable laryngeal complications which are so apt to take place, and the occurrence of which we may be able to prevent, by anticipating the danger, and employing appropriate local and general remedies.

H. E., eight years old, had been complaining a little on the 27th March of the throat, but seemed otherwise well enough. In the

evening, however, she was hot and flushed, with a little oppression in the breathing, and a quick bounding pulse. Several other children in the same family having lately been affected in a similar way, the alarm was immediately taken,—the throat was touched with a strong solution of nitrate of silver (15 grains to the ounce of water), and an antimonial emetic was given. Next morning the breathing and pulse were quieted, but there was still some fever. The throat was considerably inflamed, and on the left tonsil there was a small piece of lymph. The throat was sponged with the caustic solution, and other means to control the inflammation used; and on the 29th this little girl felt easy, and the pulse was 88 and soft; in fact, to a superficial observer, she would have seemed all but convalescent. On examining her throat, however, I did not find this to be the case. It looked more angry and swollen, and the inflammation seemed more extended. Instead, therefore, of desisting from treatment, I considered it more necessary that, both generally and locally, this should be assiduously attended to. All might, no doubt, without this have gone on well enough, but had it not been done, we might also have seen in this insidious disease serious secondary complications,—a little huskiness in the evening, an attack of croup next morning, and death within a short time afterwards.

In point of fact, on the evening of the fifth day of this attack, a rough half-croupy cough did come on, which ceased shortly after the caustic solution had been dropped into the larynx. Next morning, after applying the sponge to the glottis, I noticed on it a very small piece of soft yellow lymph. Any one looking at this little girl, who was now moving about, and not noting these facts, would have thought any treatment altogether unnecessary, and any anxiety to be quickly rid of a dangerous enemy perfectly visionary. On the evening of the eighth day there was still a very little irritability in the beat of the pulse, which prescribed caution. On the morning of the ninth day the throat had almost a blanched appearance, and the mucus from the glottis on the sponge was perfectly natural.

In noticing the progress of this little epidemic, I shall have to mention some cases of the insidious and rapidly fatal kind I have alluded to. I shall first, however, state a few particulars of another case, in which the absence of general symptoms was very striking, when we take into account the serious nature of the throat affection which existed.

This girl, aged 13, was servant in a house close to where diphtheria first appeared, and, on 18th February, when I saw her, she had been removed to her own home, and stated to me that she had been ill for a week, and had been using gargles to the throat, and poultices externally. There was no fever, and the pulse was quite natural. The soft palate on the right side was of a dark red colour, and was much swollen, and there was a large patch of thick yellow

lymph on the tonsil of that side. The left side of the palate was also much inflamed, as well as the whole of the pharynx that could be brought into view, on the back of the left part of which was seen a smaller patch of yellow lymph. The case was immediately put under the treatment which I shall have to mention, and a gradual improvement began to take place. The pulse remained for some days unaffected, and never rose above first 84 and then 96. As the case advanced, and the lymph began to separate, the appearance presented by the throat reminded me much of some of the ugly, neglected superficial syphilitic throat affections which we sometimes see.

The pain, likewise, in most of the cases I saw was very trifling, and at the commencement especially this tended to throw those in attendance very much off their guard. In one instance, the inflammation extended up the Eustachian tubes, and the pain was then somewhat more acute.

The first death from diphtheria in this district which I heard of this season, took place on 14th January. It was a child five years old. I believe four other members of the same family were subsequently seized with the same disease, of whom one, an adult, died.

On 10th January, I saw a child thirteen months old, in the same locality, who had been a little feverish during the night, and whose voice was very slightly husky when it cried. I thought the irritation might proceed from teething, and I therefore scarified the gums, and also, by way of precaution, sponged the glottis with the solution of nit. argent., though on examination I could see little wrong with the throat. On the 11th, the child seemed fully as easy as on the previous day, I contented myself with repeating the sponging. On the 13th, slight croupiness had commenced; on the 14th, it was decided and distressing; and on the 15th, the child died. In the same family, on the 13th, I was requested to see the servant girl, and found her throat much inflamed and coated with lymph. There was no fever, however, and I therefore contented myself with cauterizing and sponging the throat, which alone I would now certainly, with my additional experience, not consider safe practice. The girl, however, did well. On 4th February, in the same family, a twin-brother to the one who died, was seized with similar symptoms. This case I did not see, but I was informed by the father that he was cut off in less than twenty-four hours. Still further, on 28th February, a foster-child was seized with high fever, very quick full pulse, suffused eyes, inflamed throat, and husky voice. By this time I had become, from my more extended experience, thoroughly alive to the importance of checking the disease in its early stages, as well as to the necessity of using general as well as local measures. By the vigorous use of these the attack was checked in a few days. To the measures which I now employed in combating this affection I shall immediately advert; but it will first be instructive to give a little in detail the

complete history of a fatal case which occurred early in the epidemic. It took place in the family of seven I have already mentioned as having been attacked. At 4 P.M., on 3d February, I saw the first patient taken ill in this house,—an infant a few weeks old. I was told it had been somewhat restless during the day, but there was no fever, and the child did not seem in any way uneasy. There was, however, a little hoarseness when it cried, but I did not find the throat inflamed. I applied the sponge with the caustic solution to the throat and glottis, and ordered some warm salt to the throat externally,—a favourite application of mine in the early stages of croup. On calling next forenoon, I was astonished to find that my little patient had died at one A.M., being only nine hours after I had seen it in no apparent danger. Alarmed by this unlooked for result, I thought it prudent to examine the throat of another little girl, eighteen months old, who however was apparently not in the least ailing, and here I found, to my surprise, decided evidence of the presence of diphtheria. Both tonsils were slightly coated with lymph, and the mucous membrane of the throat seemed to me to have a slightly granular look; but there was very little swelling, and the redness was by no means intense. The breathing and voice were perfectly natural; in fact, the child seemed quite well, and I dare say some of the attendants thought me rather officious when I took her under my care, and said she must on no account be neglected. I did not think, however, that any very active measures were called for; and therefore, on the 4th, 5th, 6th, and 7th, I contented myself with thoroughly sponging the throat, including the fauces and glottis, with the caustic solution, and with touching the lymph with the solid caustic. On the 8th, the lymph on the tonsils had increased. Still she was quite easy, though reported to be a little restless during the night. The child continued in nearly the same state, and the same treatment was applied up to the 10th, when very slight huskiness in the voice was noticed. When touching the throat and glottis with the caustic solution, portions of lymph, and a tenacious muco-purulent fluid, began to be coughed up in considerable quantity. Hot salt to the throat externally, an emetic of ipecacuanha wine, and a sinapism to the breast, were ordered, to be followed by four drops of the tinct. mur. ferri, three times daily. The throat at the same time was touched with caustic, and sponged as before. From the 10th to the 16th, the husky croupiness several times became a little more severe, and was apparently controlled for a time by antimonial emetics given cautiously, by sinapisms, a blister to the throat, and the persevering use of the other means mentioned. All was of no avail however, for on the latter day my patient died; though, even on the 15th, when the child lay quiet, the breathing was pretty easy. Considerable relief always seemed to be felt when either the sponge or the emetics caused the muco-purulent fluid to be coughed up. On one occasion, two or three days before death occurred, a very dis-

trussing struggle for breath took place, until a quantity of this fluid was discharged. In the latter stage of this case the same kind of fluid also constantly flowed from the nares. I examined the body on the 17th. On opening the trachea immediately below the larynx, a large quantity of very purulent mucus burst out, as if it had come from an abscess. Both tonsils were covered with tenacious yellow lymph, so organized and adherent that it required some force to detach it. The epiglottis and membrane lining the fauces were pretty free from disease, and did not show indications of having been intensely inflamed. The lining membrane of the larynx was swollen, and was coated with soft, pulpy, jelly-looking lymph. A very thin semi-transparent false membrane extended into the trachea, reaching to about an inch and three quarters from the glottis. Below this the trachea was healthy, and the lungs were perfectly healthy and crepitant throughout.

Connected with this case we may note, 1st, The insidious progress made by the disease. On the forenoon of the 4th, when I first examined the throat, not the slightest suspicion existed on the part of the friends that any thing was wrong with the child, and yet there can be little doubt, from the appearance of the lymph on the tonsils, that the throat must have been affected for some days. The slow and gradual affection of the larynx, too, is worthy of special attention in a practical point of view. It was not till the 10th, six days from the time I first examined the throat, that the least huskiness in the voice, when the child cried, could be observed. The breathing was also easy, and any feverishness which existed was quite trifling; nevertheless, the pathological changes had already begun in the larynx that were so rapidly to prove fatal, and the huskiness was the small black cloud which indicated that serious danger was now imminent. 2d, All the other parts except the larynx were in a state that was quite compatible with the continuance of the vital functions. The inflammation and its effects that had existed in the throat, pharynx, and epiglottis had been rather superficial and obstinately persistent than destructive, and in this respect presented a remarkable contrast to what I have seen in neglected cases of scarlatina anginosa, and what I am aware is also reported to have taken place in severe or neglected cases of diphtheria. What struck me most, as compared with the scarlatina throat, or what I had ever seen before in almost any other affection, was the obstinacy with which the lymph on the tonsils resisted the daily application of the solid caustic, besides the use of the caustic solution, for eleven days. I had generally been accustomed previously to see a few free applications of the solid caustic cause the rapid separation and dissolution of effused lymph, but here, if dissolved at all, this was accomplished very partially, for after death, it had a consistence like what we find in a tolerably old adhesion. 3d, It will be noticed that the lymph on the tonsils was yellow and tough, while that in the larynx was soft, semi-transparent, and

altogether less highly organized. In all probability the lymph in the larynx was effused at a later period than that on the tonsils, and while the patient was under active general and local treatment. Was the difference in the appearance and qualities of the two due to the treatment? Had the disease become controlled to a certain extent when the effusion in the larynx took place, though not so entirely as to prevent the production of this plastic substance, which looked to me like something between jelly and false membrane? I am inclined to think that this *was* the case, for I noticed in other instances, to which I shall have to refer, that the lymph first effused on the throat before the treatment had begun was yellow and tenacious; then that the next, while the patient was under treatment, was semi-transparent and soft; and afterwards that only a jelly-looking mucus was produced. If this explanation be correct, it becomes a matter of vast importance that the curative measures should be such as will, with the least possible delay, bring the parts into that condition in which only the jelly-like mucus will be produced. 4th, Another thing that struck me in the case I have detailed was this, that the appearance of the throat and fauces as to inflammation, in spite of all the assiduous local and general treatment employed, remained very much the same from the 4th to the 15th. It never was intense, and it did not increase, but still it persisted, and remained nearly stationary, keeping me constantly uneasy, from the fear of its extension to the air passages. It seemed to me that I was contending with a specific disease,—such, let me say, as erysipelas, scrofulous ophthalmia, or syphilis; that I had a constitutional tendency or poisoning operating against me, and that I had not as yet employed those remedies that would enable me to control effectually the inflamed throat in this affection. To this important point I now therefore directed my attention, and I am satisfied that, in such cases as I saw, unless the inflammation be effectually controlled, all other treatment will be comparatively futile. Too much attention, I think, in looking at the literature of diphtheria, has been bestowed on the products or consequences of the inflammation. Writers seem to me to have been more anxious to get rid of the effused lymph than to combat the peculiar inflammation which caused that lymph to be effused,—to find remedies for ulcers, rather than to prevent these occurring. In the present case, what should I have gained if, by applying escharotics, I had destroyed the lymph on the tonsils, unless at the same time I had subdued the accompanying inflammation? On the other hand, if we can by any means control or remove the latter, the former will either not be produced, or will quickly and easily disappear.

I have said that it appears to me that we have in diphtheria not merely an inflammation, but one of a peculiar and specific kind, produced by certain morbid influences which are operating on the system; and the error I committed in the treatment of the case narrated, consisted, I think, in trusting too much, during the first

six days, to merely local remedies. I do not in the least undervalue the local treatment employed; on the contrary, I think it was most valuable; but I cannot at the same time, with the experience I now have of the disease, repeat in language too strong or emphatic my conviction, that those six days in which the patient was free from all urgent symptoms were precious, especially in so far as they afforded sufficient time in which the constitutional element of this affection might have been combated and controlled. On the 10th, after the emetic had been given, tinct. mur. ferri was begun; but I am afraid this medicine had but scanty justice done to it, from the inflammation having then attacked the larynx, and from the more urgent effects which thus resulted requiring the exhibition of the tartrate of antimony as an emetic, as well as in smaller doses to keep down the pulse.

In two papers which were published in the *Edinburgh Medical Journals* (one of them nearly thirty years since),¹ I expressed my opinion as to the very great importance of beginning the treatment of the throat in scarlatina, and of croup, at the earliest possible period. That opinion has been only strengthened by all I have subsequently seen of these diseases; and now in regard to diphtheria, which is undoubtedly different from either of these, and yet in some respects seems like a combination of both, I may say that my conviction is equally strong as to the vital importance of beginning its treatment, locally and constitutionally, at an early stage. Where it has made its appearance in a family, I would say that nothing should be taken for granted. Let the throat of every member of it be examined daily, and let the first appearance of inflammation or of lymph be regarded as sufficient evidence that treatment is required. With this precaution, I feel certain that a large proportion of what apparently are sudden seizures may be got under treatment some, and frequently many, days before dangerous symptoms show themselves, and that the occurrence of these may be anticipated and prevented, or at least their intensity greatly abated. To any one who has attended carefully to even the local treatment of the analogous throat and laryngeal affections in scarlatina anginosa and in croup, nothing, I think, can be more gratifying than to see the command which prompt, early-begun treatment has over these destructive affections. Out of many hundreds of scarlatina cases which I have had under my care, I can remember scarcely a case in which, if I saw it within the first twelve or even twenty-four hours from the appearance of the eruption, I was not able, simply by assiduously applying the solid caustic, or the solution, to the tonsils and surrounding parts, to keep these in a comparatively entire and healthy condition; and this even where the case was, from other causes, running on to a fatal issue. Without such treatment, I cannot doubt that in these instances the tonsils would often have been found after death, what most surgeons conversant with this

¹ See *Edinburgh Quarterly Medical Journal*, 1837; and *Monthly do.*, 1858.

disease must have seen them become when neglected, a pulpy sphacelated mass, with the marks of intense inflammation in the adjacent parts. In croup, also, I know of no treatment which is so satisfactory as the application of the caustic solution, provided it be made immediately on the appearance of the characteristic ringing cough. In the latter paper I have alluded to, I mentioned that I had repeatedly in my own family had occasion to employ this remedy; and I repeat now what I said then, that I have generally found the croupy cough and breathing to have either disappeared or to be greatly improved, within half an hour after one or two applications. Two conditions, however, seem to me essential to success; the first is, as I have said, that the application shall be made *very early*. How early it must be made, to secure a considerable measure of success, it is not easy to say, as cases differ much in the rapidity with which they advance; but my experience has taught me, that very generally, if the disease has lasted for only ten or twelve hours, the caustic solution produces, for every hour lost, less marked effects. Acting on this experience, I have for many years made the whalebone and sponge part of the furniture of my pocket-case, and the moment I am called to a patient with the slightest croupy cough or breathing, I improvise a solution with my solid caustic, and touch the glottis. The second condition necessary to secure success is, that not the throat merely (which I have never found much affected in real croup) should be sponged, but that the glottis should be touched, and that some drops should fall into the larynx. With a little practice and dexterity this is easily done, even in infants. That the solution has really got into the larynx, we are assured from noticing the interruption to breathing which takes place in consequence. A good many years since, to satisfy myself as to the precise bend and dimensions required in the whalebone, in order to strike the glottis in children with precision, I extracted the cervical vertebræ, and opened the pharynx from behind, when making a post-mortem examination of a girl five years old, who died of croup, and I found that the arm to which the sponge is fixed should be about $2\frac{1}{4}$ inches long, and the bend not quite that of a right angle. A firm piece of whalebone should be chosen; and, to prevent the sponge slipping off, I have two small holes drilled in the whalebone, and the sponge sewed on through these.¹

(To be continued.)

¹ Since the above was written, I have also used a simple little instrument for dropping the caustic solution into the larynx and trachea. It consists of a bit of India-rubber tube, of the smallest size, tied gently on the upper side of a firm piece of whalebone, having the proper curve. With this, a quarter of a drachm of fluid, or more if wished, may with the greatest ease be dropped over the glottis; and any one can easily satisfy himself by experiment that some of the fluid reaches the trachea. In using the instrument, I place the quantity of fluid wanted in a wine-glass, draw it up the tube with the mouth, compress the tube with the finger at the proximal extremity to prevent escape, and withdraw the pressure when the tube is over the glottis. In the continuation of this paper, I shall mention some of the cases in which it was used.

ARTICLE VII.—*Case of Induction of Premature Labour during the Eighth Month of Gestation, with successful Result to Mother and Child.* By WILLIAM C. LOW, M.D., L.R.C.S. Edin., Medical Officer of the Martley Union, Worcestershire.

ON the 14th of January 1863, I was consulted by Mrs P., a school-mistress, æt. 40, who requested my advice in consequence of constant cough and dyspnoea. I found that she was in the seventh month of pregnancy, and also suffering from valvular disease of the heart. This was her fourth pregnancy, and in the last, premature labour was induced by her medical attendant at the eighth month, by means of rupturing the membranes: the child was born alive, and survived for some months. I prescribed for nearly a month the remedies commonly employed in cases similar to this, but with no good effect, my patient becoming every day more dispirited and attenuated, owing to her inability to obtain any sleep by night or day, and from having to give up her school-duties. Her appetite also, never good at the best of times, was completely leaving her, with the worst result to her general health. Under these circumstances, fearing that she would not live to carry the child to the full time, or if she did, that her labour would be attended with the greatest risk in consequence of her debilitated condition, I determined, on February 11, to induce premature labour, and having obtained the patient's consent, performed the operation the same evening.

It is well known that the means usually employed to induce premature labour are very uncertain as regards the time which elapses between the performance of the operation and the result of it. This cannot be said of Dr Barnes' method, which, in his hands and those of his followers, has enabled them to promise the sufferer a speedy release from her trials, and although now of no *very recent* introduction, is, in my opinion, sufficiently so, to warrant the publication of the experience of those who have employed it, as it is not mentioned in the manuals of midwifery generally found in the possession of practitioners of very few years' standing, and who, as a body, derive their knowledge of fresh facts in medicine or surgery from the periodical journals.

February 10, 8.30 P.M.—Vaginal examination of my patient disclosed that the passages were dry, and the os uteri entirely undilated. At this hour I passed the largest sized caoutchouc bag into the vagina, well up to the os, gradually dilated it to its full extent by the water-pressure, and allowed it to remain for half an hour, by which time the os uteri was sufficiently patent to admit the smallest-sized instrument, which was accordingly introduced within it by means of a sound, and treated as the former one was; this, in course of an hour, labour pains having commenced, was followed by the medium-sized, and that again, after a proper interval, by the full-sized bag, until at midnight the pains were

very regular, passages moist, os fully dilated, and head presenting. In another hour matters were sufficiently advanced to have admitted of delivery by the long forceps; but my object being merely to *induce labour*, not to run any risk, I determined to allow nature to take its course; the pains continued all night, but were not very strong, and at 9 A.M., February 11, a male child was born alive, and both he and his mother are well at this date, although the former has been entirely fed by hand, the latter not having any secretion of milk, or appearance of it.

No doubt this case might have been terminated by art in five hours from the introduction into the os of the first caoutchouc bag, but although it lasted for twelve, it is yet a most satisfactory case of induction of premature labour, with the best result to the mother, who made a satisfactory recovery from the symptoms for which it was undertaken, and which were no doubt caused by the gravid uterus pressing upwards and retarding the action of an already diseased heart.

MARTLEY, 1st June 1863.

Part Second.

REVIEWS.

Jaundice: its Pathology and Treatment, with the Application of Physiological Chemistry to the Detection and Treatment of Diseases of the Liver and Pancreas. By GEORGE HARLEY, M.D., Professor of Medical Jurisprudence in University College, London, Assistant Physician to University College Hospital, etc. Pp. 132. London: Walton and Maberly: 1863.

THE main facts in regard to the biliary secretion, in the present state of our knowledge, are briefly these:—Bile consists of two principal constituents, a resinous matter (bilin), and pigment (cholepyrrhin). The pigment, though in small amount, is readily detected by its colour, and by the well-known changes of hue on the addition of nitric acid. The resinous matter, which makes up nearly three-fourths of the solids of the bile, is, when pure, quite colourless. Its chemical nature was very imperfectly known until the accurate analysis of Strecker, who discovered, about fifteen years ago, that the biliary resin presents a definite composition, is, in fact, a kind of resinous soap, and consists of two peculiar acids, now named the Glycocholic and Taurocholic, in union with soda as their base. The property which these biliary acids and their derivatives possess of striking a purple or violet colour in contact with sulphuric acid and sugar, first pointed out by Petenkofer, furnishes a delicate test of their presence. The amount of bile secreted daily by man is at present estimated, on the data of

Bidder and Schmidt, at about five pounds. The biliary acids are admitted by all to be generated in the liver, and not merely eliminated by it; while the pigment, which is believed, on good grounds, to be derived from the colouring matter of the blood, is commonly supposed to be produced in the liver, but by some (and Dr Harley maintains this view), it is presumed to be formed in the blood, and merely excreted by the gland.

Assuming jaundice to consist in the abnormal presence of bile, in whole or in part, in the blood, from which it passes into the tissues and the excretions, the endeavour of pathologists has long been to detect the presence and trace the course in the blood and the secretions, of the different constituents of which bile is composed. In regard to the pigment, this is readily accomplished. Its colour reveals its presence everywhere, and renders it the most conspicuous symptom of jaundice. But if, remembering its minute quantity and insignificance, we seek to pass beyond it and inquire into the destination of the more important biliary acids, we are at once met by serious difficulties. They are colourless, and Petenkof's test, although extremely sensitive, is delicate, and uncertain of application in mixed fluids. To the older chemists these difficulties were insuperable; and, at the present time, there are no more interesting or more keenly disputed questions in regard to jaundice, than the presence of these acids in the urinary secretion, or their transformation in the blood. Frerichs maintains that the biliary acids are never found in the urine, and he endeavours to prove that in the blood they become converted into colouring matter. In this opinion he is supported by Städler, and other chemists of eminence. On the other hand, Kühne, in his original and elaborate paper on Jaundice,¹ has described in detail his discovery of bile acids in Icteric urine, and he lays down the important general proposition, that in jaundice caused by complete occlusion of the ductus choledochus, these acids are always present in the urine. Hoppe, by a modification of whose process Kühne succeeded in detecting the bile acids in jaundiced urine, supports the statements of Kühne, and denies, on chemical grounds, the transformation alleged by Frerichs, of the colourless bile acids into pigment in the blood.² We have not space to go into this controversy, but it is impossible to read the careful statements of Kühne and Hoppe without being satisfied of the presence of bile acids in jaundiced urine. Whether they are found with the constancy alleged by Kühne, or in the quantity to be expected to justify the belief that they pass off by the urine without undergoing any change in the blood, still remains to be determined.

Professor Harley, in the present treatise, takes up these important questions. He rejects Frerichs' view of the change of bile acids into pigment, as inconsistent with the chemical nature of animal pigments and their relation to hæmatin, as shown by Harley and

¹ Virchow's Archiv, xiv., 1858. Beale's Archives, I.

² Virchow's Archiv, xxiv., 1862.

others. Agreeing in most points with Kühne, he confirms his statement of the presence of bile acids in jaundiced urine, which Harley apparently succeeds in detecting by Petenkofer's test simply. But the absence of these acids in some cases, contrasted with their presence in others, has led Dr Harley to propound those views on the pathology of jaundice which form the basis of his book. Adopting, with certain modifications, the well-known distinction recognised by Alison and Budd, of jaundice by suppression and by reabsorption, he maintains that the state of the urine will indicate with certainty the one condition or the other. In suppression, the biliary acids, being no longer generated in the liver, where alone they can be formed, will necessarily be absent from the urine; while the biliary colouring matter, which, according to Harley, is produced in the blood and not in the liver, will accumulate in the circulation, and, passing into the tissues and the urine, will be readily detected. In jaundice from obstruction, on the contrary, both colouring matter and biliary acids will pass into the urine. Consistently with these principles, Dr Harley has divided the different pathological conditions on which jaundice may depend into two classes, according as they give rise to suppression or obstruction. The former class are, he maintains, distinguished by the absence, the latter by the presence, of biliary acids in the urine.

The views here brought before us are ingenious and important. It is necessary, however, to distinguish between the observations and the doctrines founded upon them. The presence or absence of biliary acids is itself a fact of great value; and if, setting theory aside, and dividing jaundice simply into two classes, 1st, with pervious, 2d, with obstructed ducts, we ascertain the presence of bile acids in the urine of the former, and their absence in the latter, we shall have made a decided advance. That this is attainable, the statements of Kühne and Harley warrant us in believing. The evidence hitherto adduced is not, however, sufficient to establish this position. We require a large array of facts in view of the difficulties and contradictions which have hitherto attended these inquiries. In some cases of undoubted obstructive jaundice, as proved by post-mortem examination, we have formerly failed to detect the biliary acids. And Kühne has observed in his experiments, that in jaundice from partial obstruction (in the case of dogs with gall-bladder fistulæ, after ligature of the choledoch duct, in which the fistulæ allowed an imperfect escape of bile), the biliary acids were absent from the urine. It is, therefore, in cases of complete retention that the bile acids can be looked for most certainly, and their discovery will be fully significant.

In regard to the theory of suppression as a cause of jaundice, we are not prepared to agree with the views brought forward by Dr Harley. That the secretion of bile may be diminished or arrested all will admit. Indeed, even in jaundice from obstruction, suppression to a considerable extent must necessarily take place.

But of suppression as a cause of jaundice we are not convinced. Some of the conditions (cancer, cirrhosis) classed by Dr Harley under suppression are, we think, quite explicable as examples of partial obstruction. And in the acute or yellow atrophy, which was formerly regarded as the type of jaundice by suppression, we find Dr Harley stating (it is one of the most original and important statements in his work) that in the case he examined, he found the biliary acids present in the urine along with leucine and tyrosine. In toxæmic jaundice, as in yellow fever, instead of the secretion appearing arrested, the gall-bladder is often found distended with bile. Nor are we satisfied on physiological grounds of the rationale of jaundice by suppression. There is no adequate proof that bile pigment can arise in the blood spontaneously when the liver ceases to act, as urea does when the function of the kidneys is arrested. We know, indeed, that by the injection of bile acids, or even of water into the blood, the blood-cells are acted on, and a pigment like that of bile is produced from their hæmatin (Kühne, Hoppe). And this experiment may perhaps afford some ground for explaining the causation of toxæmic jaundice as independent of the liver. But in the absence of the action of the liver or of some change in the blood, is bile pigment generated continually in the circulation? We are not aware of it. The only proof we know is to the negative. The experiments of Moleschott and others showed that in the extirpation of the liver in frogs, there was no accumulation of bile pigment any more than of biliary acids in the blood. So long as these experiments remain uncontroverted, the theory of suppression is open to a fatal objection.

Although the pathological views, being of fundamental interest, have chiefly occupied our attention, we must not omit to refer to the chapters on Experimental Jaundice, and on the Principles of Treatment. The experiment of producing jaundice by injecting bile under the skin is novel and curious (p. 96). In the section of treatment, the mode of action of the different remedies is reviewed and commented on in accordance with the pathological doctrines in the earlier part of the volume. The author's observations on the action of mercurials, on podophyllin, benzoic acid, etc., will be read with interest. In cases of permanent jaundice from obstruction, Dr Harley proposes, as a last resource, the formation of a biliary fistula, such as is frequently established without much injury in animals for the purpose of experiment.

There are many points of interest in connexion with the subject before us, which space will not allow us to enlarge upon. We refer our readers to Dr Harley's work. The views which it contains are original, ingenious, and suggestive. His essay deserves the perusal of every one interested in the progress of medicine. Dr Harley has already earned a reputation from his researches in various departments of physiological chemistry; we trust again to find him bringing his science to bear upon questions of clinical medicine and pathology.

Deafness Practically Illustrated: being an Exposition of the Nature, Causes, and Treatment, of the Diseases of the Ear. By JAMES YEARSLEY, M.D., etc. Sixth Edition. John Churchill and Sons: London: 1863.

AURAL SURGERY is now one of the most thoroughly distinct specialities in surgery and its literature is becoming every year more extensive.

Till within the last half-century, aural surgery was either practised as a part of the great domain of surgery by general practitioners or pure surgeons, or had in great measure passed into the hands of ignorant quacks, each with his universal panacea—either local or general, which was equally suitable or unsuitable for all diseases involving hearing, from tumours of the brain down to collections of cerumen in the meatus.

Sir Astley Cooper himself, though much interested in diseases of the ear, and far beyond his age in his treatment of them, rather dreaded lest he should be considered an *aurist*, and eventually gave up any special attention to the subject.

But ever since Itard, physician to the Royal Institution for the Deaf and Dumb, of Paris, published his standard treatise on the Diseases of the Ear and of Hearing, in 1821, the attention of the profession has been more and more directed to the subject, and, in accordance with the tendency of the present age to division of labour, few great towns are now without one or more aurists; and the term is now not one of reproach, aural surgery being a science based on the anatomy and physiology of the organ, and requiring careful observation, and no inconsiderable manipulative skill for the attainment of success. The very extensive researches of Mr Toynbee, and his very numerous dissections of the ear, amounting to upwards of 2000, have, along with the labours of others, created an aural pathology; while, in its surgery, Wilde, Toynbee, Harvey, and Hinton, in this country, Deleau, Triquet, and Kramer on the continent, have all raised a goodly pile of volumes on the foundation of Itard. As in all other departments of surgery, great strides have been made in instrumental agency for diagnosis by visual examination of the passage. The speculum of Grüber of Vienna, the lamps of Avery, and our late townsman Dr Warden, for the examination of the meatus and membrana tympani, and the application of the principle of the laryngoscope for rhinoscopy in the diagnosis and treatment of affections of the Eustachian tube, have each added something to the knowledge of diseases and methods of cure.

For the last twenty-five years of the rise and progress of aural surgery, Dr Yearsley has been in the front, and has embodied the results of his extensive experience in the work now under review, of which the present is the sixth edition.

The general tone of the work is eminently practical ; no attempt is made at a scientific arrangement or exhaustive description of diseases of the ear, some forms of disease and points of practice are treated with special attention, and the author's own discoveries are very fully discussed and defended.

The two points which receive the greatest amount of attention in Dr Yearsley's work are,—1. Deafness the result of morbid conditions of the Eustachian tube, with or without affection of the *mucous membrane* of the throat, stomach, and ear. 2. The marvellous remedial powers of cotton-wadding in cases of deficient *membrana tympani*, and for the cure of chronic *otorrhœa*.

Dr Yearsley's chapter on the history of catheterism of the Eustachian tube is very interesting, describing the first idea of it as introduced by a layman, Guyot, the deaf postmaster at Versailles, and described by him to the French Academy in 1724, and the various modifications and improvements by Cleland, Wathen, Douglas, Itard, Deleau, and Kramer.

With the very strong views which Dr Yearsley holds as to the frequency of deafness caused by thickening of the membrane of the tube, or its being obstructed with mucus, we cannot wonder at the strong terms in which he recommends the catheterization of the tube. As a means of diagnosis, it is certainly sometimes very valuable, but that its frequent application, or the use of injections of fluids, or of compressed or medicated air into the tympanic cavity, are often necessary, or even admissible, is, we think, now denied by most English surgeons. Notwithstanding his approval of syringing the middle ear from within, Dr Yearsley has, in his sixth chapter, some sensible remarks on the danger of indiscriminate and repeated syringing of the external ear from without.

The question of throat deafness, and the possibility of an enlarged tonsil blocking up the opening of the Eustachian tube, is fully discussed, Dr Yearsley, against the opinion of Mr Toynbee and others, asserting that such blocking up is both possible and frequent.

With Dr Yearsley's too mechanical explanation of this "Throat deafness," we cannot agree. He says, "The true explanation of the loss of hearing by closure of the tube seems to be, that the vacuum caused by the loss of air in the tympanum places the membrane of the tympanum under the influence of atmospheric pressure. We can easily imagine how a weight of 15 lbs. to the square inch must affect such a delicate membrane as the drum of the ear. The membrane of the tympanum, when the cavity is a vacuum, bears an actual pressure of more than 7 lbs., as it is more than half an inch square ; it becomes preternaturally tense, and its vibrations on the impulsion of sound are greatly impeded."

Now, there are several fallacies here ; first about the vacuum, why should there be one at all ? what is to send the air out of the middle ear ? and how does it get out if the Eustachian tube is closed ? Second, as was shown by Toynbee in 1853, and as is

believed by Wharton Jones, Hyrtl, and others, the normal condition of the Eustachian tube is to be shut, its walls lying close to each other, and it is only opened at times during the act of deglutition; so that the effect of the obstruction of the duct on hearing must be the result, not of its not being open, but of the retention of secretion and the vitiated character of the air which is contained.

Another point, almost too trivial to mention, as it is surely an inadvertence, is in the arithmetical calculation about the weight borne by the tympanum in its supposed circumstances, in which "half an inch square" gets the credit of being equal in area to "half a square inch."

In the description of the effect of enlarged tonsils in causing deafness, and the treatment by their removal, Dr Yearsley tells us that he has excised upwards of 4000 morbid growths from the throats of patients; but, notwithstanding this large experience, he makes the following most extraordinary pathological statement:—"The growth to be removed has neither nerve to give pain nor bloodvessel to bleed, it is neither more nor less than a deposit of fibrine, the result of repeated inflammations." However, the paragraph in which this occurs is for the purpose of "allaying the fears of the timid"—(patient? who is supposed to read scientific works on deafness)—so, perhaps, this curious pathology may not do him much harm.

The description of the discovery of the marvellous effects of the pellet of moistened cotton wool in cases of perforation of the membrana tympani is most interesting, and the cases recorded are very remarkable. It includes the paper read in this city to the British Medical Association in 1858, on the *modus operandi*, and also refers to the controversy which, in 1857, existed between the author and Mr Toynbee, regarding the artificial membrana tympani invented by the latter. The cotton wool, trivial as it may seem, is simpler, safer, and as efficient as any more complicated artificial tympanum, and, besides, has a directly curative effect on the otorrhoea which so frequently accompanies perforated membrana tympani; while the other apparatus tend, by the irritation of their presence, rather to keep up the discharge.

The question of perforation of the membrana tympani as a cure in some cases is fully discussed; but for this and many other important points we must refer to the work itself. It is the production of a thoroughly practical man of great originality and experience. Its practice is throughout far before its pathology. Written in an easy characteristic style, it is very pleasant reading, though marred here and there by references to old controversies, self-assertion, and fine writing, and is a work from which surgeons will obtain much reliable information, and which every aurist would do well to possess.

Catalogue of the Library of the Royal Medical and Chirurgical Society of London. London: 1856; with Supplements to 1862.

Catalogues de la Bibliothèque Impériale. Catalogue des Sciences Médicales. Tome Premier. Paris: 1857.

Catalogue of the Library of the Royal College of Physicians of Edinburgh. Edinburgh: 1863.

THE great progress which the sciences have made during the present century, has exerted a corresponding influence on our libraries; and it is now generally acknowledged that it is not sufficient to bring together a great number of books, but that it is essential to classify and arrange them, and enter their titles in carefully prepared catalogues. By this means alone can the libraries of the present day be placed on a level with the requirements of literary and scientific men. Few, however, are aware of the difficulties which present themselves to those who are engaged in such important labours, or of the time and trouble which the preparation of extensive catalogues involves. Yet it is interesting to remark, that, notwithstanding these difficulties, and the almost encyclopædic knowledge which is required in bibliographical researches, many eminent physicians have devoted great labour to such investigations; and the catalogues of Haller, Ploucquet, Atkinson, Forbes, and the *Bibliotheca Britannica* of Dr Watt, will always attest the interest which these distinguished men have taken in bibliographic inquiries.

We have to notice, amongst the larger catalogues of medical works recently published, the Catalogue of the Library of the Royal Medico-Chirurgical Society of London; the first volume of the Catalogue des Sciences Médicales, being the medical department of the Bibliothèque Impériale of Paris, recently issued by order of the Emperor Napoleon; and the Catalogue of the Library of the Royal College of Physicians of Edinburgh.

Catalogues of special libraries, like the first and last of these, are particularly valuable, as these collections, without being so extensive as the large public libraries, have the merit of greater completeness in particular departments.

The library of the Medico-Chirurgical Society is a very valuable one; and, as the Fellows of the Society are numerous, an accurate printed catalogue became a great desideratum. Accordingly, the preparation of an entirely new catalogue, constructed directly from the books themselves, was commenced in 1854, and published in 1856. The works are arranged alphabetically, according to their authors' names; but a very valuable addition was made by the publication in 1860 of an index to the catalogue of the library, in which the subjects are arranged in alphabetical order.

The arrangement of the *Catalogue des Sciences Médicales* of the French Imperial Library is according to subjects,—a mode of compiling a catalogue which is very useful, but which, to render it complete, necessitates a general index of authors. The handsome quarto volume of nearly 800 pages, already published, contains lists of works on the history of medicine, on anatomy, physiology, hygiene, and the first part of pathology; the second will include the remainder of pathology, with therapeutics, pharmacology, medical jurisprudence, and veterinary medicine. M. Tascherau, director of the cataloguing department, in his report to the Minister of Public Instruction, which forms the preface to the volume, complains that he has derived no assistance in his task from the Academy of Medicine. Naturally thinking that that learned body could aid him in framing a classification at once simple, logical, and scientific, he applied, through the Minister, for their advice. In October 1852, he was informed that a commission had been appointed to draw up a report on the subject, and that this would be communicated to him without delay. But, alas! commissions and committees are not always to be depended on; time passed away, and no report appeared; as M. Tascherau pathetically observes—“*L’attente fut longue; elle fut vaine.*” Three years elapsed, and, wearied out with waiting, the authorities of the library referred to M. Dubois the perpetual secretary of the Academy. The secretary was more trustworthy than the commission; he drew out a scheme of classification, which, with some modifications in detail, was adopted. As might be expected, the library is very rich in French medical works of all periods, but we were somewhat disappointed in finding the medical literature of other countries far from perfectly represented.

The Catalogue of the Royal College of Physicians has lately been issued to its Fellows. As stated in the preface it is the fourth edition of the Catalogue. The preface contains some interesting information relative to the origin and gradual progress of the library, and the early history of the College, in so far as the changes in its chambers or hall are concerned; reference is also made to certain violent controversies which arose amongst the Fellows of the College about the end of the seventeenth century, with regard to the treatment of fever, and in which Dr Andrew Brown, Dr Archibald Pitcairn, Sir Edward Eizat, Sir Robert Sibbald, and other eminent Scottish physicians were engaged.

The library has made very rapid progress of late years; it now contains upwards of 15,000 volumes, and is increasing at the rate of 600 or 700 annually. As might be expected the library contains a very full collection of the works of the early Scottish physicians, but it also includes many of the rarer works printed in England at an early period; amongst the last may be noticed a very rare and curious one by John Hall, the son-in-law of Shakespeare, which presents a very singular specimen of the state of

medicine in England about the middle of the sixteenth century. It was published in London in 1565, and is entitled "An Historical Expostulation against the Beastlye Abusers, both of Chyrurgie and Physyke in our Tyme: with a Goodlye Doctryne, and Instruction, Necessarye to be Marked, and Folowed, of all true Chirurgiens: gathered by John Halle, Chirurgyen." We may extract an account of one of the quacks or irregular practitioners of that period:—"One Robert Nicols, a false deceiver, and moste ignoraunt beaste, and of the profession of vagaboundes, (as weare his former felowes :) bath in tymes passed boasted him selfe to have been the servaunt of maister Vicary, late Sargeant Chyrurgien to the Queenes highnes. But now the matter being put in triall, he sayeth he was apprentice with a priest. Among whose wicked & prodigious doynges, (whiche are infinite,) one very notable chaunced in the yere of our lorde. 1564. the. 26. of September. He poured in a purgation to an honest woman of good fame, one Riches, wydowe, of Linton (a paryshe three myles distant from Maydestone): whiche within three or foure houres at the moste, purged the lyfe out of hir body: so violent was this mortal potion. The woman being before in perfecte health, to all mens judgements: beinge onely of simplicitie perswaded to take the same, by the deceivable perswasions of this Nicols: Who made fayre wether of all thynges, and hir to beleve, that he would deliver hir of such diseases, as in deede she had not. For he should have had by composition, xx. shillinges for the saide drynke." Master Nicols was arrested and put in jail, where he was questioned by members of the faculty regarding his knowledge and his doings; space only permits us to extract one specimen of his answers:—"Among other questions of the Anatomie, to al the which he answered as beastly, as in other thinges before, it was asked him what the splene was, and he answered, that it was a disease in the syde, baked harde lyke a bisket: denying that there was any thyng called the splene, but the disease (sayeth he) so called."

The "goodlye doctrine," appended to the "expostulation," is partly in verse, and the following stanzas show that Mr Hall had a very correct estimate of the importance of anatomical knowledge:—

"Harke and drawe nere ye younge studentes,
Your eares loke ye uncloze:
The worthy arte Chirurgery,
To practise that purpose.

"But chieflie the Anatomye,
Ye oughte to understande:
If ye will cure well anye thinge,
That ye doe take in hande.

"For by the same above the rest,
Ye shall greate fame deserve:
The life of man from manye streightes,
To save and well preserve.

- " Without the knowledge of whyche arte,
Thou canste not chose but erre :
In all that thou shalte goe aboute,
Thy knowledge to preferre :
- " As if ye cutte or cauterize,
Or use Phlebotomye :
Ye can not but erre in the same,
Without Anatomye.
- " He is no true Chirurgien,
That can not shewe by arte,
The nature of evry member,
Eche from other aparte.
- " For in that noble handye worke,
There dothe nothinge excell,
The knowledge of Anatomye,
If it be learned well.
- " Endevoure therefore by all meanes,
The same to knowe and cunne,
For when thou haste it perfectlye,
Thine arte is halfiye wunne.
- " For therby shalt thou understande,
Of eche member in dede,
Their nature and their offices,
And howe they doe procede.
- " And unto what good use they serve,
As well the leaste as moste,
And by their hurte Prognosticate,
What action will be loste.
- " Wherby of knowledge and greate skill,
Thou shalt obtaine the brute,
And men to thee in generall,
For helpe shall make their sute.
- " Wherefore all honour, laude and praise,
To God ascribed be,
The Father, Sonne, and holye Ghoste,
One God and personnes three."

Besides containing an excellent collection of printed books in the various departments of medicine, the library of the College of Physicians possesses a valuable series of manuscript notes of the lectures of the founders of the Edinburgh School of Medicine, to whose labours the fame of Edinburgh as a place of medical education is justly due. Under the same head may be noticed twenty-two volumes of the manuscript consultation letters of Dr William Cullen.

Like that of the Medico-Chirurgical Society of London, the Catalogue of the Edinburgh College is arranged according to the names of the authors, but the former, as already mentioned, has a printed index of subjects by which its value is much enhanced. We trust that this important part of the Edinburgh Catalogue will be printed at some future time.

On the whole, these three Catalogues are welcome additions to medical literature, tending as they do to afford the student a still more complete view of what has been written on medical subjects; and we would only remark in conclusion, that it is every day becoming more necessary to be aware of what has been written by others, in order to avoid the annoyance of discovering, when too late, that the field had already been occupied by previous inquirers.

Reports in Operative Surgery, "Series the Eighth." By RICHARD G. BUTCHER, Esq. Dublin: 1863.

THERE are several cases of considerable interest to the surgeon contained in this pamphlet. A report of a case of severe elephantiasis of the right lower extremity is given, which is of sufficient moment to warrant a condensed account of it here.

A female patient, of the age of forty-four, had been suffering more or less severely from the above affection for eighteen years, when she came under the care of Mr Butcher. Before that period of eighteen years, she had at times felt uneasy sensations in the limb, but she paid little attention to them. Being a laundress by trade, she was rendered useless for much work, and was therefore anxious that some means should be taken, if not to cure her altogether, at least to make her capable of exertion sufficient to earn her daily bread. When admitted to Mercer's Hospital (under the care of Mr Butcher), the limb presented an appearance such as to render hopeless the application of any ordinary treatment for elephantiasis. The healthy leg measured 8 inches in circumference above the ankle, while the diseased one measured $16\frac{1}{2}$ inches. Around the dorsum and arch of the foot the healthy leg measured 10 inches, the size of the diseased one was $15\frac{1}{2}$ inches.

Notwithstanding the repeated requests of the patient to do so, Mr Butcher did not feel justified in removing the limb by amputation, and resolved to attempt to cure it by ligaturing the femoral artery. This operation, in consequence of the accumulation of fat, the increased size of the limb, and the distended veins, was one of considerable difficulty to the surgeon. The femoral vein, also greatly enlarged, was, by the great quantity of blood which it contained, rolling over the arterial trunk, and to avoid it great care was necessary on the part of the operator. These were the chief difficulties in the way of the operation, but they were overcome, and the vessel was secured, leaving the great vein unharmed.

Shortly after the operation, the limb fell in a very marked manner in temperature, pain was complained of in the region of the ham and the knee, to remedy which the limb was wrapped in cotton wadding, hot jars were placed along it, and a large opiate administered. The patient continued gradually to recover from the

effects of the operation, the limb slowly decreased in size, and on the thirty-first day after it, the ligature of the artery came away. At that period also, the limb began to show very decided tendencies to reduction in size, so much so, that the muscles and tendons could be distinctly traced when brought into action by the movements of the leg. Six months after the operation the patient left the hospital able to use the leg with great ease, although the application of a bandage round the leg has not yet been dispensed with. Here the report of this case ends, so that we cannot tell whether the operation has procured permanent relief to the patient. "So far as the history now goes," says Mr Butcher, "the case has, I would say, been eminently successful; as to the permanent nature of the cure, time has not yet sufficiently passed by so as to afford a practical answer."

The next case reported by Mr Butcher is one of "Excision of the Knee-joint, all the functions of the limb being fully preserved, with the exception of the knee being rendered firm and rigid (the perfection of cure), and with no deformity to the patient."

This operation for excision of the knee-joint being now recognised as one of the regular operations of surgery, and also being so frequently performed, requires no remarks to be made upon it here.

But we cannot understand what Mr Butcher means when he says that the *knee being rendered firm and rigid* constitutes the *perfection of cure*. We are inclined to believe that, in such a case, cure is perfect only when the limb is rendered as useful to the patient and as normal as possible—and surely that cannot be when the joint at the knee is taken away and no joint supplied. It would be justifiable to render the knee firm and rigid were there no means of preserving motion; but as such means do exist, we are of opinion that it is only just to the patient that the surgeon should take advantage of them. There are certain conditions which cause any attempts to form a false joint to be dangerous to the life of the patient, as when a disposition to relapse is apparent, "then," says an eminent surgeon of the present day, "prudence will necessarily dictate the safer procedure which favours ankylosis; sacrificing motion but retaining the limb, because securing immunity from return of the disease." But we are unable to discover anything in this report which would lead us to conclude that such a disposition to relapse had been observed in the present case, and even if there were any notice of the kind, we are inclined to think that, by the words "the knee being rendered firm and rigid (*the perfection of cure*)," Mr Butcher would imply that in every case of excision of the knee-joint the after-treatment should be with a view to render the bones to unite by ankylosis.

There are several other cases which we cannot allude to here, though we would fain say a few words concerning them. But we must close the book, which we have read with great pleasure, for it contains the records of a thoroughly practical man. It reports bold

and daring operations performed by a skilful surgeon. And it is by these operations that surgery maintains the rank to which it is entitled as a science. If all surgeons were content to proceed in a humdrum manner, their profession would be degraded to a mere money-making trade, instead of being regarded in its true light,—a noble science, whose aim is the preservation of life, and the speedy relief of pain.

Stammering and Stuttering: their Nature and Treatment. By JAMES HUNT, Ph.D., F.S.A., F.R.S.L., etc. London: Longman: 1863.

IN these days of division of labour, when it takes twenty skilled workmen, or something like that number, to finish a pin, it is no wonder that specialists flourish within the wide borders of our profession. Day by day the field is becoming more and more parcelled out, and as each little plot of ground is dug deeper and deeper, and more thoroughly brought under cultivation, new adventurers are seeking "fresh fields and pastures new" in which to expatiate.

On the very border-land of the profession lies the class of defects, vices of education and of habit, rather than diseases, which it is the object of this treatise to remedy. Its author, as the son of one of the earliest and most successful cultivators of this field in Britain, has an almost hereditary right in it, besides what he has won for himself by his experience and success.

The first chapter is devoted chiefly to making out the distinctions between stammering and stuttering, with the general causes of each, so far as they depend on a defective use of the mechanical agents of voice. Chapter II. is devoted to causes of other sorts, as, hereditary transmission, individual peculiarities, and emotional influences of all sorts. Both chapters are interspersed with many striking and amusing cases, and exhibit considerable philological research. In the third chapter is a very erudite review of the history of the chief theories of the causation and modes of treatment of impediments in speech,—exhibiting most extensive reading and research, and interesting as showing the great variety both of theories and methods of treatment.

On the statistics of stammering we find the curious fact stated, that four men stammer for every female victim. Mr Hunt hints at a possible explanation of this fact, to be found in the well-known theory, that, in order to compensate woman for her weakness, nature bestowed upon her a powerful weapon in the gift of the tongue.

After some very sensible pages, condemnatory of any surgical interference, such as would have been very useful in Dieffenbach's days of "operating gone mad," and a chapter on the question, "Is Stammering a Disease?" we come to the practical part of the work, and this is headed, "System of the late Mr Hunt, and Practice of

the Author." After such a heading to the chapter, we must confess to being a little disappointed, and not a little astonished, to find in the very first page the following sentence:—"I do not care to enter into any particulars of treatment, which would perhaps have the effect of depriving sufferers of that confidence which they can alone obtain by *vivâ voce* instruction. I believe, therefore, I am consulting the best interests of those suffering from impediments in speech when I refrain from entering into any particulars of my mode of treatment. This course does not certainly receive the approbation of the inquisitive or indolent."

Quite true, Mr Hunt; and at the risk of being thought inquisitive, we must condemn most heartily the egotism and self-advertising spirit of this chapter. Intermingled with puffs of the author's experience, we have quotations from a laudatory article in *Fraser's Magazine*, a description of what takes place on the first admission of the patient to Mr Hunt's consulting-room, remarks on the necessity for his boarding with Mr Hunt, observations on the home-sickness induced thereby, examples of the rapid removal of the home-sickness, proofs of the necessity for staying at least twenty weeks, histories of one or two patients and their relatives, a treatise on the advantages of sea-bathing, with a description of the author's new establishment by the seaside.

A most characteristic quotation from an article, evidently from the pen of the Reverend Professor Kingsley, in *Fraser's Magazine*, is given in an appendix, in which riding, rifle-shooting, and boxing, along with true manliness and self-respect, are recommended with the wonted eloquence of that muscular divine as the best adjuvants to a cure of stammering.

The book is in many respects a good one, and, were it not for the unlucky chapter on the "System of the late Mr Hunt and the Author," would be worthy of unqualified praise.

Almanac Général d'Arcachon. 1^{re} Année. Paris et Bourdeaux :
1863.

ALMANACS have become so common that a recent writer in *All the Year Round* has spoken of "the plague of almanacs" in very unmeasured terms, denouncing especially some French ones. "My son brings me in a handful of French trash, of which I, as a British father, can make neither head nor tail." Did the *Almanac d'Arcachon* belong to this category, we should not devote time or space to notice it; but it directs attention to some special hygienic advantages of that place, which must render it extremely interesting to invalids debating in their own minds to what place they shall resort for winter quarters, particularly if they belong to the class which French physicians term *poitrinaires*. Of the railways in France, one, a branch of the *Chemins de Fer du Midi*, leads, as a recent writer has said, "on through western France by queenly

Angoulême, enthroned among her vineyards, and the quays of stately Bourdeaux, and across the Landes,—not without their mournful beauty, being a kind of Scotch steppe, waving like the sea with heather and firs." A line from Bourdeaux conducts to La Teste and the Bassin d'Arcachon, which are about forty miles farther south. In this region the Scottish invalid may almost deem himself at home; while he will find a mildness and steadiness of temperature which will contrast strongly with the fluctuations and rigours of his own native "land of brown heath and mountain flood."

Arcachon is situated in 44° 38' N. lat., and is so remarkably sheltered, that, though it perhaps receives little influence from the bland gulf-stream, its temperature is in winter somewhat higher than Bourdeaux, and a great deal higher than Paris. Nay, there is a difference of even two or three degrees (of the Centigrade thermometer) between the shore and the pine-forests, in which are situated the "*Villas d'Hiver*," intended for the residence of invalids, and to which we wish chiefly to direct attention. There are some other peculiarities worthy of note, though difficult to account for,—such as the great proportion of saline ingredients in the water of the Bay of Arcachon compared with that of the Mediterranean. This constitution of the sea-water cannot but exercise a decided influence on the skin of those who resort to bathing, for which the beach offers very great facilities and comforts.

In the pine-forest has been erected a set of villas, replete with accommodation for the healthy, and every contrivance to ensure the welfare of invalids, whether those presenting the early symptoms or threatenings of consumption, or the more advanced stages. Bronchitic cases and rheumatism seem to experience much alleviation from a residence in this locality. The striking exemption of the habitual inhabitants of this region from all these maladies first incited medical men to search for the cause, and some spirited individuals have come forward with purse and intelligence to render it available to all who seek health by change of climate. Taking it for granted that the workmen in the pine-forests, who prepare the Bourdeaux turpentine, are really exempt from these diseases, notwithstanding their hard work and meagre fare, can any satisfactory or scientific explanation be given?

Dr William Ireland seems to have proved satisfactorily that ozone is a powerful disinfectant.¹ Pine-trees evolve it in large quantity; even the bark seems to emit it. Where these are abundant, health prevails. Of the importance of this subject the Bombay Government appears fully aware, for it has directed Dr Cook to make arrangements for the systematic registration of the daily amount of ozone in the atmosphere throughout the Presidency.²

¹ See his paper in *Edinburgh Medical Journal*, July 1862,—Notes on the Medical Topography of Kussouli.

² *Lancet*, 13th June 1863, p. 677.

Now, the position of the "*Villas d'Hiver*" in the forest of Arcachon ensures a vast supply of this purifying agent; so that there can be little question as to the beneficial effect of breathing the invigorating atmosphere which surrounds the invalids who may resort thither. The notion of the superior salubrity of such sites is neither new nor confined to Europe. Johnstonus, in his *Dendrographia*, published at Frankfort in 1662, observed that it is wholesome to walk in groves of pine-trees, which impregnate the air with balsamic particles. "In Germany," says Dr Ireland, "it has been observed that in districts where pine-forests are abundant, bronchitis and rheumatism are not so common as elsewhere; and Professor Albers of Bonn regards it as certain that patients suffering from these disorders derive benefit by removing to such localities. Ozonized cod-liver oil, the reader must know, has lately been recommended in phthisis."¹

Dr George Wood, Pennsylvania, says, in his *Treatise on the Practice of Medicine* (4th edition, Philadelphia, 1855), in regard to changes of climate in phthisis pulmonalis,—“For Americans there is probably no better residence than the interior of Georgia, Alabama, and Florida. The immense pine-forests of these regions may add the advantage of their exhalations to those afforded by the comparative dryness and warmth of the climate.”

But the distance, and the unhappy war now raging in these territories, forbid invalids resorting to these regions. Besides, all benefits to be hoped for from the abundance of pine-trees are to be found at Arcachon, and certain others not readily met with elsewhere. The French mode of cooking food, especially stewing, is greatly commended by Dr Prout for such as suffer from dyspepsia,—a too frequent accompaniment of consumption. Then the abundant supply of grapes, constituting the famous *cure de raisins*, is an important point.

As invalids are mostly accompanied by healthy members of their family, amusement and means of instruction for them abound. If geologists and botanists, they may find ample occupation in studying the history of the churches overwhelmed by the ever-shifting sands of the shore, till science and enterprise bound them over to “good behaviour,” and made that productive and useful which was once destructive. The early church was obliged to be rebuilt farther and farther inland, the original being buried by the sand. A precisely similar event covered up two of the churches in Cornwall,—Perranzabuloe, on the north-east corner of West Cornwall, and an ancient British church in the sands of Gwithian, on the north-west corner of West Cornwall.²

¹ See *Observations on the Medical Administration of Ozonized Oils*, by Theophilus Thompson, M.D., in *Trans. of the Medico-Chirurg. Society of London*, vol. xlii. p. 349; also *Lectures on Pulmonary Consumption*, by Theophilus Thompson, 2d edition, with Appendix by his son, Dr E. Symes Thompson.

² See *Edinburgh New Philosophical Journal*, January 1863, p. 14.

The constant drifting of the loose sand inland threatened to make the whole region valueless and uninhabitable, till Bremon tier, a resident of the province, succeeded in opposing an effectual barrier to its farther progress by planting a wood. First of all, he planted the sand-loving broom-rush (*Sarothamnus scoparius*), and produced in its shade young pine-trees, and so brought the overflow of the sea-sand to a stand-still. Thus was produced that forest, to the friendly shelter of which those threatened with consumption should flee, if by any means their malady may be prevented or its progress arrested. Some who have tried, as a winter residence, both the Isle of Wight and Arcachon, give the preference to the latter.

A Manual of Elementary Chemistry, Theoretical and Practical. By GEORGE FOWNES, F.R.S., late Professor of Practical Chemistry in University College, London. Ninth Edition, Revised and Corrected. London: Churchill and Sons: 1863.

THE rapidity with which edition has followed edition of this work is the best proof of its being well adapted to the wants of the student. In fact, Fownes' Chemistry has become a standard work; its success has not been inferior to that of any other of Mr Churchill's excellent series of manuals. This success has not, however, tempted the editors to rest contented with what they have already done; each successive edition is brought fully up to the actual state of the science. In the present edition, various alterations and improvements have been made, rendered necessary by the progress of chemistry during the last two years. We have only to repeat the hearty recommendation of this work which we have expressed upon former occasions.

Part Third.

PERISCOPE.

MEDICAL JURISPRUDENCE.

ON THE RESTORATION TO A NATURAL APPEARANCE OF PUTREFIED BODIES WITH A VIEW TO THEIR IDENTIFICATION. BY DR BENJAMIN WARD RICHARDSON.

ON Saturday, the 9th instant, I conducted an inquiry to ascertain if a human body that had undergone putrefactive change to such a degree that it was unrecognisable could be so far restored to the appearance of life as to be sworn upon in respect to its identity.

As the inquiry in question, from the circumstances by which it was surrounded, has created great public interest, as it opens a new line of research in regard to a medico-legal question of a very important nature, and as certain

imperfect impressions are afloat concerning it, I take the opportunity of laying the exact scientific facts before the profession at the earliest possible moment.

To make every point clear to provincial and foreign brethren, let me state the simple narrative of the facts in the first place. Some weeks ago, a woman named Emma Jackson was murdered in St Giles's, by having her throat cut in a house of ill-fame, to which she had retired with a man who had been seen by at least three persons, and whose appearance was clearly defined by them. This man, by some strange and almost inexplicable method, made his escape from the house without being seen to depart, and has not since been detected. Several persons have, however, been suspected, and one or two have been temporarily detained, but on examination they have been discharged.

On Monday, 4th May, a man was dragged dead from the Thames who in many respects seemed to answer the description given of the assumed murderer. On the following Wednesday, Mr Humphreys, the coroner for East Middlesex, held an inquest on the body of this man, but decomposition had advanced so far that none of the witnesses could arrive at any conclusion whatever respecting the body: it was in fact utterly unrecognisable. This statement having been made in the public papers on Thursday morning, I formed an opinion, derived from some researches on dead tissues, that it might be possible to alter the appearance of the body so much as to enable the witnesses to speak to its identity. In the afternoon of Thursday last, I met, accidentally, Dr Lankester, who had held the inquest over the body of Emma Jackson, and I explained to him my views. He urged me very strongly to communicate with Mr Humphreys. I did so, and through the kind aid of Dr Edmunds got an interview with Mr Humphreys on Friday night. Having given him an outline of the plan I proposed to follow, he deputed me to carry out the attempt, and requested Dr Edmunds to be present and take part in conducting the suggested process. We were to act at once, as the adjourned inquest was to be held on Saturday.

At half-past ten on Saturday we were taken to the dead man, who was lying in a shell in the deadhouse in Darby Street, Tower Hill. He was dressed as he was when taken out of the water. His body generally, with the exception of the hands, was deeply discoloured, and the face was so changed that it was quite impossible to form any opinion respecting either its colour or feature: it was as black as the face of the darkest negro, and had it not been white when he was taken out of the water, I should say that the man would have been returned as a negro. The lips were enormously distended, and the nose was scarcely visible; the cheeks and eyelids were also greatly distended. In fact, the putrefactive changes were so advanced that it required some little determination to proceed. Following, nevertheless, the course I had marked out, we immersed the body in water, and then added to the water twenty pounds of common salt; we also added gradually, in the course of the operation, one pint of common hydrochloric acid; and the body was allowed to remain under this solution for two hours. The object of this part of the process was to reduce the swelling of the features by exosmosis. The shell, being water-tight, answered as a bath.

Meanwhile we charged a pail of water with fresh chlorine, and then, lifting the face out of the water in the shell, treated it with the chlorine water. I also directed a stream of chlorine gas for some time upon the face. The object of this part of the process was to restore the white colour.

A little before one o'clock both of the intentions we had in view were realized to a considerable degree. The tumefaction was relieved; and the face, from the deepest black, had become of the cast of light clay, common wood-ash, or the darker sort of straw-paper. When the chlorine in vapour was passing over the face the skin approached to white, but so soon as it was withdrawn the change to clay-like hue returned. So much was now accomplished that we were able to form a fair estimate of the man. We found that he was evidently a young man, not more probably than twenty-one years of age; he had

a short feeble moustache; his lower lip had a short soft beard that had not been shaven, and his whiskers corresponded; his face was naturally round and full, and indeed his body generally was well nourished.

At one o'clock we left, and returned at two. We had arranged that a stream of chlorine should continue to play over the face in our absence; but as we had no one to leave in charge, the gas had become exhausted, and the face was a little darker when we returned.

Pursuing still the course I had prearranged, we opened the body. We found the viscera but little decomposed, and natural; the heart was empty and flaccid; the lungs free from congestion. We fixed a large tube in the aorta, through the left ventricle; and Dr Edmunds tied the aorta in the thorax, so as to prevent any passage of fluid to the lower part of the body, and to the abdominal viscera. Then we injected a solution, consisting of chlorine water, chloride of zinc, and a little sesquichloride of iron. The object in this instance was to impregnate the tissues from within with the decolorizing agent, and to reduce the tumefaction. On forcing the injection, we found that great escape took place through the vessels that had been divided in opening the thorax. We therefore withdrew the tube from the aorta, and as the face was the part chiefly requiring attention, Dr Edmunds laid bare the common carotid on the right side, and a small nozzle from the syringe was introduced into that vessel and tied. It must be understood that much care was required in forcing the injection through structures so decomposed and yielding, and that we dare not push this part of the operation too far. Had we used much force we should have produced extensive infiltration through the broken capillaries, and have destroyed the facial structures altogether. So soon, therefore, as the face was subjected to slight tension the injection process was stopped. The time had now approached for the sitting of the jury at half-past four P.M. We allowed all the water to drain away, drenched the body with pure water, and left it with the face covered with a piece of thick cloth, on which was poured a little hydrochloric acid and methylated alcohol. The face at this time was of a clayey colour, and a little more full than natural; and although we felt that we had not brought it up to its perfect natural appearance, we believed that it might be recognisable by anyone who had seen it during life, and especially that it was a face which a witness could swear was not that of any particular person whom he remembered, if there were not strong natural resemblances between the two.

The result indicated that we had effected even more than we had anticipated, and that, if we had not succeeded to the perfection we could have wished, we had fulfilled the practical part of our mission and all that was demanded of us; for the three witnesses who were there either to confirm or disprove the hypothesis that the man before them was the man last seen with the murdered woman, each and all swore without hesitation, on their second view of the unknown man, that he was *not* the assumed murderer.

Margaret Curley, of 4 George Street, St Giles's, swore that she had examined the deceased since the operation had been performed, but that she did not recognise him as a person she had seen before, nor as the person suspected; Charles Ansley, of 20 Peter Street, bore the same testimony; and H. Stoke, the shoeman, swore definitely that, from his inspection of the deceased since the operation, he was sure that he was not the man whom he had seen with Emma Jackson. The Coroner, in summing up, observed that the experiments made having enabled the witnesses to swear that the deceased man was not the man accused of the murder, they had fulfilled their purpose, and the jury returned a verdict in accordance with the evidence.

Reflections and Suggestions.—The fact that in a case so extreme as the one named, science has come in to render essential aid to justice, affords, I hope, subject for thought and renewed effort in the same direction. I am far from considering that we ought to stop where we have thus begun. I look upon this case, in fact, as a mere first and experimental trial, which followed up will lead to great perfection in one department of medical jurisprudence; and I feel,

consequently, that I cannot conclude this paper better than by pointing out what improvements in the process have been suggested to me by the experience detailed above.

1. In respect to time. On another occasion I would ask to be allowed at least twenty-four hours for the performance of the process. The period of six hours was insufficient for the full development of the required changes.

2. I should proceed by stripping the subject of all apparel.

3. After this the subject should be placed in a water-tight shell, in which a large tap for escape of water should be inserted, and the body should be thoroughly washed with water.

4. After the washing the body should be covered with water, and held beneath it by a few cross bars of wood. Then the lid of the shell should be temporarily but effectually closed down, and two openings should be made into the lid; through one of those openings the free end of a tube, connected with a chlorine flask, should be passed beneath the surface of the water; while from the other opening should come another tube, the free end of which should turn over into a glass globe of water. These preliminaries arranged, fresh chlorine should be driven in until the water within is saturated by it, the fact of saturation being determined by the passage of chlorine through the escape-tube. When the water around the body should thus become charged with chlorine, the openings in the lid of the shell should be closed, and the whole should be left undisturbed for twelve hours.

5. On opening the lid after the interval of time named, common salt should be added to the water, until the hydrometer should stand several degrees above the specific gravity of the blood; the specific gravity of 1100 would answer for the solution. In this solution the body should remain immersed for twelve hours; the water should then be drawn off and the body examined.

[If there were no deep decomposition and discoloration, the body, I believe, would now be ready for identification; but if the putrefaction were very deep-seated, it would be requisite to proceed further.]

6. If necessary, open the trunk of the body at this point, and make any post-mortem observations that may be required. The head should not be opened at this stage.

7. After the post-mortem examination, in order to restore a more natural expression to the face, solutions should be injected into the external carotid of each side. The form of solutions I should suggest in another case would be—

(a) Water saturated with chlorine, and charged, in addition, with tincture of the sesquichloride of iron in the proportion of two fluid drachms to the pint.

(b) Common fresh milk saturated with common salt.

Of injection *a*, I would recommend that from two to three ounces should be slowly injected on each side, to be followed, without removing the nozzle of the syringe from the vessel, by so much of solution *b* as should cause the slightest possible tension on the tissues of the face.

Lastly, If it were requisite to retain the body for some time, it would be advisable to cover it with wood spirit, containing one drachm to the gallon of the tincture of sesquichloride of iron, and to exclude it from the air.

In offering these suggestions, I beg that they may be accepted as open to revision: the principle recognised, the details are certain, under experiment, to be simplified and improved.

In conclusion, I have to offer my warmest thanks to Dr Edmunds for the energetic, friendly, and able part which he took in the very interesting inquiry to which I have called attention. His exertions contributed in a most important manner to the results obtained.—*The Lancet*, May 16, 1863.

MURDERS BY THE INSANE.

Two criminals, accused of murder, have been, during the past week, acquitted at the Central Criminal Court on the ground of insanity. One, an elderly

man, named Thomas Lidbetter, killed his wife and his imbecile son by cutting their throats. When taken, Lidbetter offered no resistance. On being formally charged, he said he "knew all about it," but that he did not know what he was doing at the time. Evidence was given that he had latterly become taciturn, eccentric, and irritable. Mr Evan B. Jones, Surgeon, of Hanover Street, Hanover Square, said that he had known the accused for some years, that he had attended his wife when she gave birth to the imbecile child. The prisoner's conduct was most considerate and affectionate at that period; but he was always a strange, odd man, peculiar in his manner, taciturn, and incommunicative. Originally he appeared to have been feeble-minded, and, after injuries to the head, received in 1856 and 1859, his perceptive faculties became less acute, and his eccentricities more strange. Mr Gibson, Surgeon to Newgate, on the contrary, deposed that the prisoner had been under his care for a week, and in his opinion was now in a sound state of mind.

Lord Chief Baron Pollock very naturally expressed his surprise that no medical man had been called on the part of the prosecution, to speak to the prisoner's state of mind at the time of the alleged murder, and on Mr Metcalfe, the prosecuting barrister, proceeding to cross-examine Mr Gibson as to the effects of intoxication on an enfeebled intellect, his Lordship interrupted the examination by saying, that "An inquiry involving the life or death of the prisoner was not to be made the sport of a cross-examination as if it were an every-day matter."

We are heartily glad that our judges are becoming more alive to the extreme danger of eliciting medical opinions on such difficult matters as criminal insanity by the process of cross-examination, a method which not only in the large majority of cases fails to extract the real opinion of a scientific witness, but in no small proportion leads him on to expressions or statements which to bystanders bear an entirely different meaning from that he intends. This result may be a triumph of forensic skill, but it is fatal to justice no less than to scientific truth.

The other case was one in which the insanity seems to have been dependent on pregnancy. The prisoner was a married woman, 21 years of age, and four months advanced in pregnancy. She had been twice *enciente* before, and during those periods had suffered from great despondency, and had always exhibited a peculiar horror of knives and razors. She murdered her child by cutting its throat, and then attempted her own life, first by wounding her throat, and then by throwing herself out of window. She also took laudanum, which was detected in some fluid she vomited. This at least appears to have been an instance where the catastrophe might have been foreseen and prevented. Yet, probably, any physician who in her previous pregnancies had recommended restraint would have had some difficulty in proving to a jury its necessity, if proceedings had been taken against him for wrongly signing the certificate of lunacy.—*Medical Times and Gazette*, July 18, 1863.

SUICIDE IN BAVARIA.

M. MAJEE in his work on this subject states, among other motives for suicide, that the price of food has great influence upon it, especially during the last few years since food has so greatly increased in price.

Suicides increase in proportion to the increase of the population, but in times of great political agitation the number of suicides diminishes, increasing again when quiet and order are re-established, doubtless the result of hopes deceived.

Suicide, he remarks, is also more frequent in towns than in the country, but that may be accounted for by the greater amount of population in the former.

Sex exercises an influence on this malady, as men are attacked in greater numbers than women, the proportion being 4 to 1; now as this difference

relative to sex is not found in mental affections, although in the number of crimes, suicide can be but rarely attributed to a derangement of the intellectual faculties.

Violent deaths by suicide, by assassination, or by accident, taken as a whole, are three times more frequent among men than among women, and suicides by women are of more constant occurrence in towns than in the country. The greatest number of people commit suicide when arrived at manhood. In Bavaria the maximum occur between the ages of forty and fifty; under forty years of age and over sixty, there are more women in proportion; whilst between forty and sixty there are more men who commit this crime.

In a given number of people suicide is found to be three times more general among the Protestants than the Catholics, and about a third more frequent than among the Jews. In mixed provinces the frequency is in an inverse ratio to the number of the Catholic inhabitants. By way of compensation, crimes are more universal among these latter.

In agricultural populations this crime is nearly four times as rare as it is in industrial populations, and in years of dearth the proportion seems to increase in the towns more than in the country. Suicide, at least in Bavaria, is rather more frequent among married people; crime, on the contrary, is always more constantly committed by the unmarried. About half of the number who commit suicide enjoy good health, intellectual derangement has been satisfactorily found to exist in about a fifth, and bodily affections in about a fourth.

The greater number of patients were little favoured by family or fortune; but in about two-fifths their position and circumstances left nothing to be desired. Suicides from mental causes are more common among Catholics than Protestants.

Death by hanging is the method selected by half those who commit suicide in Bavaria and Germany; then, drowning by about a fourth. Ladies generally choose this latter method.

The greatest number of suicidal deaths occur in June, July, and August; the smaller number in the cold months of November, December, and January.

We see again in these facts how much the crime of suicide is influenced by national customs and modes of life. The Bavarians follow the English in that hanging is with them the most popular form of self-destruction.—*Social Science Review*.

MATERIA MEDICA.

THE ORDEAL BEAN OF CALABAR. BY DR GEORGE HARLEY.

At the meeting of the Royal Medical and Chirurgical Society, held on Tuesday, the 9th June, a paper was read by Dr Harley, on the ordeal bean of Old Calabar: its action on the animal body compared with that of woorara and conia.

The author began his communication by a brief account of the literary history of the ordeal bean. He next alluded to the botanical characters of the plant. It is a long twining shrub, with papilionaceous flowers and leguminous fruit, the kernels of which, both in taste and appearance, resemble the common white haricot bean. The natives call the plant *Eséré*, and it was by the missionaries named the ordeal bean, in consequence of its being given to persons suspected of witchcraft, with the view of discovering their innocence or guilt. The paper was illustrated by diagrams of the plant, specimens of the bean and its preparations; and its effects on the pupil of a human being and of a cat were shown by Dr Harley. The conclusions drawn by the author are as follows:—1. The ordeal bean may cause contraction of the pupil when taken internally as well as when applied locally. 2. That atropine and the Calabar bean are physiologically antagonistic. 3. That the ordeal bean paralyzes the

motor nerves, and leaves the intelligence and muscular irritability unimpaired. 4. That it excites the salivary and lachrymal secretions. 5. That it destroys life by paralyzing the nerves supplying the respiratory muscles—being, in fact, a respiratory poison. 6. Although it may weaken the heart's power, it neither stops the circulation nor arrests the heart's action. It is not, in fact, a cardiac poison. 7. It is closely allied in its effects to woorara and conia, most closely, perhaps, to the latter; but it differs from both in its tendency to produce muscular twitchings, and in its power of inducing contraction of the pupil. Neither woorara nor conia exert generally or locally any such effect on the iris. 8. The ordeal bean will prove a most valuable addition to the Pharmacopœia, by not only giving us a useful myopic, but also a powerful anodyne, capable of soothing nerve-irritation without either destroying intelligence or endangering life by arresting the heart's action.

Mr Soelberg Wells was somewhat surprised that, in enumerating the peculiar properties of the Calabar bean, Dr Harley had not called more attention to its singular power of causing contraction of the ciliary muscle, and thus affecting the accommodation of the eye, as this was of far greater importance than its action upon the pupil. The impairment of vision which follows the application of atropine is not due to the dilation of the pupil, but to the paralysis of the accommodation. This is proved by the fact that if we employ a sufficiently weak solution of atropine, so that the constrictor pupillæ alone, and not the ciliary muscle also, is paralyzed, vision will be but very slightly impaired. Now the Calabar bean possesses the peculiar power of not only causing contraction of the pupil, but also of the ciliary muscle, thus changing the normal into a short-sighted eye. It also counteracts the paralyzing effects of atropine upon these muscular structures. In a case of rheumatic paralysis of the constrictor pupillæ and of the accommodation (ciliary muscle) of the eye, which he (Mr Wells) published in the *Medical Times and Gazette* a few weeks ago, the action of the Calabar bean was fully illustrated, and its power of causing contraction of the paralyzed parts traced step by step. With reference to this case he might state that it was now all but cured, the pupil having almost regained its normal size, and vision being nearly perfect. He would not, however, attribute too much of this good result to the effect of the Calabar bean, as it was well known that such cases of paralysis of the pupil and the accommodation, more particularly when they occurred after severe illness, often got well of themselves when the patient's health improved. He, however, believed that in this case the Calabar bean considerably accelerated the cure. With respect to the local action of the bean he might remark, that Professor Czermak and he had been trying its effect upon the eyes of rabbits, directly after decapitation, and that they had found that it produced marked contraction of pupil within about twenty minutes of its application. He was, however, still engaged upon these experiments, and had hoped to have concluded them before the reading of Dr Harley's paper before this Society, which he had not expected until the next meeting.

Mr J. W. Hulke communicated briefly the results of three experiments which had been made with the alcoholic extract of the bean on patients under his care at the Royal London Ophthalmic Hospital, by Mr Workman, the House-Surgeon. The first patient, a sailor, had paralysis of both third (cranial) nerves, and mydriasis from syphilitic periorbitis. Two hours after the application of the extract to the right eye, the nearest point of distinct vision was sixteen and a-half inches, and the diameter of the pupil was one line, the proximate point having been previously twenty-six inches, and the pupil two and a-half lines broad. In the same time the near point of the left eye had become twelve and a-half instead of twenty inches, and the pupil one line instead of three lines across. The second patient had paralysis of the left third cranial nerve, with mydriasis, of four years' duration, the consequence of traumatic periorbitis with abscess. In one hour the proximate point had become six instead of eight and a-half inches, and the pupil had contracted

from three to three-quarters of a line. In the other unaffected eye the application of the extract effected in the same time an alteration of the proximate point from eight and a-half to four inches, and reduced the pupil from one and a-half to three-quarters of a line. The third was a case of paralysis of the left third cranial nerve, with mydriasis from periorbitis, possibly rheumatic, which had been twice previously cured with iodide of potassium. In an hour the proximate point of distinct vision was brought from ten to five inches, and the pupil changed from three to three-quarters of a line in diameter. Mr Hulke thought these cases confirmed generally the statement of Dr Robertson, who was entitled to great credit from his practical inquiry into the physiological action of the bean on the eye.—*Medical Times and Gazette*, June 20, 1863.

ON THE INTERNAL AND EXTERNAL USE OF THE PREPARATIONS OF IODINE
IN SKIN DISEASES. BY PROFESSOR HEBRA.

PROFESSOR HEBRA throws some doubt upon the favourable results which are said to have ensued from the treatment of non-syphilitic skin diseases by the internal use of iodine. As regards syphilis, Hebra maintains that he has much more frequently succeeded in curing affections of the skin and bones by the internal or external use of the preparations of iodine, than swellings or hard infiltrations of the lymphatic glands. The fact that after a long internal use of iodine, many non-syphilitic skin diseases disappear, is explained by Hebra partly by the spontaneous involution of the complaint (since all curable chronic dermatoses are capable of completing their course in a longer or shorter time even without the assistance of art), and partly by the circumstance that in many persons, after a long-continued use of iodine, a sudden consumption of the organic solids, disturbance of nutrition, anæmia, and emaciation supervene, and thus cause the disappearance of the skin diseases, although it is too often observed that when the re-establishment of the health follows the discontinuance of the iodine, the skin disease again makes its appearance. There is another peculiar circumstance, that although during the use of iodine, some skin-eruption, as inflammation of the hair-follicles and sebaceous glands, may supervene, this may exert no influence on the form or the cause of the existing disease, as psoriasis, prurigo, or eczema. The local application of iodine is therefore preferable to its internal administration.

Hebra considers the following preparations of iodine as the most valuable:—
1. The tincture of iodine is particularly useful in alterations of the epidermis by increase of the pigment (chloasma and lentigo). In this case it is necessary to paint the skin of the face in quick succession every four hours for three days. The brown crust which is formed generally falls off in six days, and leaves behind a colourless epidermis. The tincture is not so successful in the treatment of the small-pox pustules. 2. The iodide of glycerine, of Richter, has the advantage over the tincture, that it contains a greater proportion of iodine, and the operation of this agent is more permanent, from the fact that it remains longer in the fluid state. It is peculiarly well adapted for the removal of the new formations of lupus, and possesses the advantage of leaving a slight and smooth scar. 3. The ointment of iodide of sulphur acts like a caustic. In the treatment of acne rosacea and sycosis, the iodide of sulphur is laid on in the form of a plaster for the purpose of local cauterization. After two or three days it is discontinued, in order to allow the irritation to pass off, and then it is again applied, until the pimples and pustules have ceased to exist, and no relapse is observed. 4. The protioduret of mercury has been repeatedly employed successfully by Hebra in psoriasis, lichen, and eczema squamosum. It is rubbed in three or four times a-day. 5. The deutioduret of mercury raises a blister, and acts as a caustic on excoriated and ulcerated parts, and hence it soon destroys infiltrations and new formations. Instead of this preparation, another may be used, made by rubbing together calomel and iodine, with chloride and iodide of mercury, and lard. According to the expe-

rience of Frodsham, the ointment of iodide of mercury is a very efficacious remedy in scrofula, even in cases which resist the treatment with iodide of potassium and iodine ointment.—*Allgemeine Wiener Mediz. Zeitung*, 1862, and *British and Foreign Medico-Chirurgical Review*, July 1863.

ON THE ACTION OF TARTARIZED ANTIMONY ON THE HEART. BY PROFESSOR ACKERMANN, OF ROSTOCK.

BY means of tartarized antimony we are enabled to induce different degrees of collapse by varying doses of the drug. Slight appearances of collapse accompany the first excitement of nausea, and they increase as the nausea increases. The frequency of the pulse also increases until immediately before vomiting, while its force progressively diminishes. The temperature of the peripheral parts falls in proportion as the nausea and frequency of the pulse increase. After the act of vomiting, or when this does not ensue, after the termination of the feeling of nausea, appearances of reaction begin. Injections of tartarized antimony into the bloodvessels in dogs produce results similar to those observed in man. Professor Ackermann always observed, after injection of tartarized antimony, a diminution of the force of the blood in the aorta, and this took place whether the frequency of the pulse increased or diminished, but was greater with a slow pulse, and was greatest immediately before death. The operation of tartarized antimony may be explained by reference to the experiments performed. As this drug diminishes the arterial tension and the force of the heart's movements, it retards the circulation of the blood, and hence induces a decrease of animal heat, which becomes lower in proportion to its longer and more powerful operation. This lowering of the temperature appears to be occasionally interrupted by its elevation, and the latter seems to be dependent on the contemporaneous acceleration of the breath-movements. Professor Ackermann does not deny that the vomiting and purging may also hasten the cooling of the body, but he considers that these circumstances are not necessary conditions.

The irritability of the heart is perceptibly weakened by the use of tartarized antimony. In dogs killed by the injection of this salt into an artery, the irritability of the heart examined immediately after death was remarkably diminished, and sometimes altogether extinguished. The hearts of frogs placed in a solution of tartarized antimony lost their irritability much sooner than in pure water. The diminution of muscular power was also very remarkable. The breath-movements were sometimes calm, sometimes hurried, but for the most part very slow, with hasty, forced inspiration, and very long expiration, appearances which Professor Ackermann attributes partly to the congestion of the venous system and the deficient combustion, and partly to a directly debilitating effect of the tartarized antimony on the organs of expiration. The short and spasmodic inspirations which for the most part precede the long expirations, appear to be determined by a similar spasmodic contraction of the diaphragm as is seen before the act of vomiting.

The post-mortem examination of animals poisoned by tartarized antimony showed a general congestion of the whole venous system, the vena cava and the portal vein being especially filled with dark blood; the liver, spleen, and kidneys excessively congested with blood, sometimes with extravasation; the lungs not, as Majendie maintains, changed in structure and partly hepatized, but for the most part normal, or at most showing some emphysema of the margins and small ecchymoses. The large intestine was regularly contracted both in length and breadth, and there were some ecchymoses on the folds of the mucous membrane.—*Virchow's Archiv*, xxv. 1862, and *British and Foreign Medico-Chirurgical Review*, July 1863.

Part Fourth.

MEDICAL NEWS.

GENERAL COUNCIL OF MEDICAL EDUCATION AND REGISTRATION.

(Continued from page 81.)

MINUTES OF MEETING, Monday, 1st June 1863.

Dr Aquilla Smith presented a report, in which the Committee appointed to consider and report on the publication and distribution of the Register, and also on the expediency of accepting a proposal for the insertion of advertisements in the Register, with a view to diminish the expense of publication, reported that, though advertisements were inserted in publications more or less analogous in nature and purpose to the Medical Register, yet, considering the practical difficulties that would probably occur in exercising a censorship on advertisements which might be offered for insertion, even were they restricted to advertisements of books, and the risk of offence from what might be deemed undue admission or unfair exclusion, in particular cases, the Committee did not think that it would be expedient to accept the proposal.

The Committee submitted a list of public offices and functionaries among which the 2000 copies to be supplied by the Government might be advantageously allotted, omitting the registrars of births and deaths, whose number in Great Britain amounts to 3206. Distribution proposed:—England, 1070 copies; Scotland, 277; Ireland, 591: total, 1938.

Dr Corrigan presented the Report of the Committee on Amendments of the Medical Act:—

“The course the Committee have adopted is to go through the sections of the Medical Act seriatim, and to append to each section such proposed amendments as seemed fit to be submitted for consideration.

“The Committee do not propose that the General Council should at present express an opinion on the proposed amendments, nor are the Committee unanimous in some of the amendments suggested.

“The Committee suggest that the present course might properly be, that the General Council, without expressing any opinion on the proposed amendments, should give instructions to the Executive Committee to have a Bill drawn up embodying the proposed amendments; that the Bill thus drawn up should be transmitted to the several licensing bodies mentioned in Schedule A for their consideration; and that the amended Bill, with any alteration suggested by the several licensing bodies, should be submitted for consideration at the next annual meeting of the General Council.

“There remains one point on which the Committee have not been able to suggest a satisfactory amendment—the license in midwifery. The difficulty has arisen from the charters of the several Colleges differing in power in regard to this license. The College of Physicians of London and the Colleges of Physicians and Surgeons of Edinburgh are not authorized to issue separate licenses in midwifery, while the College of Physicians in Ireland and the Colleges of Surgeons of England and Ireland are empowered to issue such separate licenses. This appears to maintain an inequality of privilege that ought to be removed.”

The following are the suggestions for the amendment of the Medical Act:—

That a Bill be introduced to be termed “A Bill to Amend the Medical Acts.” The preamble to state that, in addition to the expediency of distinguishing qualified from unqualified practitioners, “it is necessary for the safety and protection of the public towards securing adequately educated practitioners in the several departments of medicine, surgery, and pharmacy,” etc.

The following alterations are proposed in the sections quoted:—

Sect. 10 to give extended powers for the appointment by the General Council of so many clerks and servants as shall be necessary for the purposes of the Act; and every person so appointed to be removable at the pleasure of the Council, and to be

paid such salary as the Council shall think fit. (The previous clause was absolute and prescribed fixed duties to special officers.)

Clause 13 and proposed amendments, with Observations of Scotch Branch Council of No. 27, 7th Feb. 1863, to be referred back to Solicitor for observations.

Sect. 13 to provide that certain alterations be made in the mode of keeping separate the accounts of the Branch Councils, and for the regulation of contributions from general fund.

Sect. 14 to provide that if any person registered shall notify to the Registrar that he has ceased to practise, and wishes to withdraw his name from the Register, the Registrar shall have power to erase his name.

For Sect. 20 to substitute a section to the following effect:—"It shall be lawful for the General Council to lay down such regulations respecting the education and examination of practitioners in medicine, surgery, and pharmacy, as may appear to them fitted to ensure adequate knowledge and skill in the several departments of the profession; and the said General Council shall then submit such regulations to her Majesty's most Honourable Privy Council. And the said regulations, if sanctioned by the said Privy Council, shall then be obligatory upon all universities, colleges, and other bodies enumerated in Schedule A to this Act."

For Sect. 21 to substitute the following:—"And it shall be lawful for the Privy Council, upon its being represented to them that any university, college, or other body enumerated in Schedule A does not comply with such regulations, to declare that any qualification granted by such university, college, or body, shall not confer any right to be registered under this Act. Provided always," etc.

To Sect. 27, after the words "provisions of this Act," add the words as proposed in the tabular statement,—namely, "And that he is not possessed of any qualification which would entitle him to be registered in accordance with the provisions of this Act."

For Sect. 29, the clause as suggested by Mr Ouvry, and printed in the tabular statement, approved of,—namely, "The Council may refuse to register any person who may have been convicted in England or Ireland of any felony or misdemeanour, or in Scotland of any crime or offence; and if any registered person shall be so convicted, or shall, after due inquiry, be judged by the General Council to have been guilty of infamous conduct in a professional respect, whether before or after registration, the General Council may, if they see fit, direct the Registrar to erase the name of such person from the Register."

Sect. 31.—"Every person registered under this Act shall be entitled, according to his qualification or qualifications, to practise medicine, or surgery, or pharmacy; or medicine, and surgery, and pharmacy, as the case may be," etc.

To Sect. 34 the following words to be added:—"According to his qualification or qualifications."

In Sect. 36, the word "apothecary" to be inserted after "surgeon." (This recognises the status of that branch of the profession.)

For Sect. 37 substitute the following:—"After the 1st day of January 1859, no certificate required by any Act now in force or that may hereafter be passed, from any physician, surgeon, or apothecary, or other medical practitioner, shall be valid, unless the person signing the same be registered under this Act."

Sect. 40.—"On and after the day of 186 , it shall not be lawful for any person, unless registered under this Act, to pretend to be, or take or use the name or title of Physician, Doctor of Medicine, Licentiate in Medicine or Surgery, Master in Surgery, Bachelor of Medicine, Doctor, Surgeon, Medical or General Practitioner, or Surgeon Apothecary or Accoucheur, or Licentiate or Practitioner in Midwifery, or any other medical or surgical name or title; and any unregistered person so offending shall forfeit and pay a sum not exceeding £20, to be recovered in a summary way before the justices of the peace."

Sect. 48.—Amend by introducing the words "Ireland, and the Faculty of Physicians and Surgeons," after "England."

In Sect. 55 omit the words "chemists, druggists, and." (This brings them under the operation of the Act—see below.)

A section to the following effect to be added:—

Sect. 56.—"It shall not be lawful for any person to keep open shop for the compounding of physicians' and surgeons' prescriptions, unless he be a licentiate of the Apothecaries' Hall of England or Ireland, or shall have received a certificate of competency to compound medicine from either of the above bodies, or from the Pharmaceutical Society, or from some other body duly authorized, in England, Ireland, or

Scotland, by the General Medical Council to institute the necessary examination and to grant such certificate, and at such rate of Fee as the General Medical Council, with the approval of the Privy Council, may sanction; and any person keeping open shop for the compounding of medicine, unless qualified as aforesaid, shall, upon a summary conviction for any such offence before any justice of the peace, pay a sum not exceeding £20. And for the better protection of the public, and to ensure the carrying out of the provisions as aforesaid, it is hereby enacted that the Medical Council may appoint from time to time one inspector for England, one for Ireland, and one for Scotland, whose duties shall be to inspect, as often as may be required, all shops where medicines are compounded, and to carry into effect the provisions of this Act in regard to such shops; and that such inspectors be paid such salaries out of the Consolidated Fund as the General Council, with the approval of the Lords Commissioners of her Majesty's Treasury, may from time to time determine."

A section also to be added as follows:—

Sect. 57.—"No patent, quack, or other medicine shall be sold unless a sworn certificate of its composition be lodged with the Registrar of the General Council, and a copy thereof be open for inspection in the shop or place in which such medicine is sold; and any person or proprietor of a shop selling any secret remedy shall, on summary conviction, for each such offence be liable to a penalty not exceeding £20."

Report of the Special Committee appointed by the General Council on 27th May 1863, relative to the Pharmacopœia.

The Committee appointed "to take into consideration, and to report what further steps it is desirable for the General Council to take in reference to the Pharmacopœia," have carefully considered various matters which have been put before them and the Council by the chairman of the Pharmacopœia Committee. They have to report that several of these matters are of great importance, and require the attention of the Council before its present meetings come to an end; and they recommend that these be all settled now, so that as little as possible of the business connected with the Pharmacopœia shall be left over to another session of the Council.

I.—The first subject to which the Committee have turned their attention is the expense attending the preparation and publication of the Pharmacopœia, and the mode and terms of payment.

Every member of Council was, or might have been, aware that a Pharmacopœia, which was to be an amalgamation of three national Pharmacopœias, could not be prepared without a large expenditure. During the first session of the Council there seems to have been a general understanding that, unless for the services of professional chemists and others, to whom the several branches of the Pharmacopœia Committee might find it necessary to intrust a part of their duty, the Council would escape any outlay on account of those engaged in preparing the work. The labour required of the sub-committees, however, soon proved to be so great in prospect, that it was impossible to expect that so many professional men should surrender their time without some compensation. Accordingly, it was stated by the chairman of the Pharmacopœia Committee, at the session of Council in 1859, that provision would have to be made for a charge on this account. No idea could be formed at that period, however, of the probable charge, under any possible arrangement which the Pharmacopœia Committee or the Council could then have proposed.

This Committee are confident that no one conversant with the practical difficulties which surround the task committed to the Pharmacopœia Committee will suppose that any part of the work they have gone through was superfluous, or has been the cause either of delay or of expense which might have been avoided. It may be added, that the extra expenditure occasioned by the delay which originated in the question settled by the Council last October, relative to weights and measures, has been inconsiderable.

The mode of payment of all charges on account of the Pharmacopœia has been clearly understood by its Committee; but little appears on the subject in the minutes of the Council which can serve as a guide to the present Committee. The understanding was, that the Council should advance from the Registration Fund such money as might be required for current expenses, the payment of which could not be justly postponed; that these advances should be repaid from the proceeds of the sale of the Pharmacopœia; and that the other charges, including especially compensation to members of the sub-committees for their time and services at sub-committee meetings, must depend on the amount of these proceeds. Accordingly, the advances

made by the Council, on account of the Pharmacopœia, were applied to remuneration for much chemical, botanical, and pharmaceutic advice and experiment; for the attendance of nine members at two delegations, one in London and another in Edinburgh; and for lesser current expenses. But the remaining charge, which relates to the services of secretaries and editors, to certain extensive chemical investigations, and to attendance on sub-committee meetings, is still open for consideration; and this Committee are of opinion that all these charges ought to be settled, as far as possible, by the Council before its present meetings terminate.

The Committee of Council beg here to observe, that the Council, in advancing at different periods sums from the Registration Fund, for the current expenses of the Pharmacopœia Committee, does not appear to have given any special authority, or instructions, as to the particular items of current expense which should be paid from these advances. The chairman of the Pharmacopœia Committee made certain statements on that head to the Council from time to time; and he considered himself entitled to endorse, and the treasurer of the Pharmacopœia Committee to pay, the charges mentioned above, as in conformity with the statements made in Council. It might have been better had the instructions of the Council been more specific. But this Committee submit that the attempt to make them so would probably have involved frequent delays, on account of the necessity, under such instructions, of references from the Pharmacopœia Committee to the General Council at times when the Council might not be sitting.

The Council should keep in view, before providing for the payment of attendance on sub-committee meetings, that a large proportion of the fund accruing from the sale of the Pharmacopœia will be required to replace what has been advanced from the Registration Fund, and to defray the cost of printing and publishing the work, and remuneration still due for chemical investigations, and to secretaries and editors.

The terms on which the charges thus remaining due should be paid have received the most earnest attention of this Committee.

Two distinguished chemists were requested jointly to undertake together extensive investigations essential for the chemistry of the Pharmacopœia. These gentlemen devoted their whole time for many days to these investigations, and one of them had to leave his professional duties at Edinburgh in order to meet the other at Dublin. The chairman of the Pharmacopœia Committee informs us that these labours were undertaken on the footing that, in all probability, those who conducted them would be paid by the Council an allowance at the same rate as members of the General Council for attending its meetings; and that this allowance would be very much under the usual fees received by chemists in like circumstances.

The duties of the secretaries being over, or very nearly so, the Committee are able to come to an opinion under that head of expenditure; and they recommend that the sum of £100 be paid to each of the secretaries of the Edinburgh and Dublin sub-committees; and the sum of £150 to the secretary of the London sub-committee, who acted also as general secretary of the whole Committee.

The duty of the editors has now only begun. The Committee have been informed that this duty will last four months; and as two of the editors reside at a distance, one in Edinburgh and the other in Dublin,—the labour of all three must be considerable. The Council should also be informed that it has no claim on these gentlemen, originating in membership of the Council; for none of them is a member of this body. The Committee are, therefore, of opinion that the Edinburgh and Dublin editors ought to be awarded for their trouble a sum of £50 each, and the principal editor in London a sum of £75.

The payment to members of the sub-committee is a different question. If the Committee look only to the professional position of most of the gentlemen who compose the Pharmacopœia sub-committees, and to the time and knowledge which they have given to the duty undertaken by them at request of the Council, this Committee could scarcely hope to compensate them for their services by an adequate remuneration. The Committee, therefore, recommend that £500 should be voted as an honorarium to each sub-committee. The sum of all the sub-committee meetings has been during four years 407; and the sum of attendances of all the members has been 1851. But even these numerous attendances give no idea of the amount of labour of the sub-committees, not a few of whose members have given much of their private and individual leisure to the business of the Pharmacopœia.

II. The next subject brought before the Committee relates to the form or forms in which the Pharmacopœia ought to be published. After the statements put before the Council at the meeting of Council on the 26th inst., it is merely necessary for

this Committee to report their opinion, that on the whole it is advisable that two editions be published contemporaneously,—an octavo and a duodecimo edition,—as proposed by the Executive Committee of the Council. The Committee find that the duodecimo edition may be sold at the low price of 5s. a copy, and the octavo at 7s. 6d., without involving the Council in any eventual loss, although a portion of the advances made by the Council may be for some time undischarged.

The Council will recollect that the price of the work must receive the sanction of the Lords of her Majesty's Treasury.

III. The third question submitted to the Committee is, whether it may not be advisable that the publication of the Pharmacopœia be preceded by some explanation of its composition, the principles of its construction, the changes introduced, and the necessity under which the members of the several branches of the medical profession will lie of making themselves acquainted with the British Pharmacopœia, and of discarding all those which it is to supersede. The Committee are of opinion that a measure of this kind may prove not only acceptable to the medical profession at large, but likewise very serviceable for preventing inconvenient and even dangerous errors. The Committee do not think it necessary that the General Council should themselves prepare and authorize a publication of this nature. But the chairman of the Pharmacopœia Committee has expressed his readiness to publish such a document, if agreeable to the Council.

IV. The next subject for the Committee's consideration regards the means which may be taken by the present Council for supplying their members with the experience which the Council has gained as to the most suitable machinery for preparing future editions of the Pharmacopœia, and publishing them with the least possible delay and expense.

It appears to have been thought by some members of the Council, that the number of persons who have been engaged in preparing the British Pharmacopœia, and consequently the expense, might have safely been less than on the present occasion. The Pharmacopœia Committee might, indeed, have consisted of a smaller number of members, had the Council not had to reconcile three Pharmacopœias, and the members of the medical profession in the three divisions of the kingdom, who have been long accustomed to use them. Without a large representation in Committee from the several bodies concerned in those works, serious jealousies and obstacles would have arisen, which it would have been highly undesirable to provoke. But the Council is now the sole authority, and only incurs public responsibility in regard to the Pharmacopœia. It may henceforth adopt, without reserve, the measures which seem most suitable for subsequent editions.

The Committee, on considering what measures may be now recommended to the Council, have been impressed with the recommendation of the chairman of the Pharmacopœia Committee, that the improvements in medicine and pharmacy ought not to be allowed to accumulate long without being introduced by authority to the medical profession at large; and that therefore either a supplement or new edition of the Pharmacopœia ought to be brought out every five years on an average; and that for this purpose a charge should be given by the Council to one or more competent persons to keep up the necessary information for the Pharmacopœia on a level with advancing knowledge from month to month; so that the requisite changes might be supplied to the Council within a very short period after demand.

To this end the Committee advise that—

1. In each capital of the three divisions of the kingdom respectively the Branch Council should appoint a person to undertake this duty who is a medical practitioner, acquainted with the natural history and chemistry of pharmacy.

2. That it should be an instruction to these gentlemen to invite information as to improvements in the Pharmacopœia from the medical, surgical, and pharmaceutical bodies of the several divisions of the country.

3. That, under the sanction of the Executive Committee, the treasurer be empowered to pay to each of these gentlemen a sum not exceeding £20 annually for charges for scientific and practical inquiries.

4. That they should inter-communicate their results half-yearly.

5. That they should be ready every five years to give, at the request of the General Council, their conjoint opinion as to the changes they consider advisable for a new edition, or a supplement, of the Pharmacopœia.

6. That the Executive Committee should have charge of editing and publishing such new edition or supplement, after approval by the General Council.

V. The last subject to be referred to by this Committee is the recent introduction

of a Bill into the House of Commons for altering the weights and measures of the kingdom to the metrical decimal system of France and many other countries. The Bill contemplates that, if passed, the Act shall be permissive for three years, and then compulsory. Pharmacy is expressly included. The House of Commons takes up the second reading of the Bill on July 1st.

The Council will observe that it is quite otherwise circumstanced in respect to this Bill than when it came to a decision last October on the question whether the French metrical system of weights and measures should be adopted at that time as the system for Pharmacy in this country. The Committee, therefore, beg to call the attention of the Council to the approaching proceedings in Parliament. But they leave it to the Council itself to decide whether any and what steps should be taken by the Council in the present position of this important question. R. CHRISTISON, *Chairman*.

Moved by Dr Christison, seconded by Dr Andrew Wood, and agreed to,—“That the Report of the Special Pharmacopœia Committee be received and printed in the minutes.”

Dr Alexander Wood presented the Report of the Committee appointed to consider the Recognition of Foreign or Colonial Degrees or Examinations.

REPORT.

The applications are three in number:—

1st. One from McGill University of Montreal, dated 22d August 1862, and craving to have its degree recognised for registration.

The Committee submit the correspondence between the Dean of the Medical Faculty of McGill University and their Registrar, feeling that they cannot add anything to the excellent letter of the latter, which fully explains the position of the Council.

“McGill University, Montreal, 22d August 1862.

“Sir,—I beg leave to make application, through you, to the General Council of Medical Education on behalf of the Medical Faculty of McGill University, to have its degree recognised for registration.

“McGill University, as will be seen from the calendar herewith sent, holds a royal charter, and is in full operation in all its Faculties. The Medical Faculty, more especially, has been very successful: 159 students having attended its lectures during last session.

“From its commencement as a Faculty it has required a high standard of excellence in its professional examinations.

“It has also earnestly endeavoured to elevate the preliminary examination to as high a standard as the educational institutes of the country would permit.

“As will be seen in the printed abstract of its regulations, a competent knowledge of Latin and of either English or French composition is required; and after the 1st of May 1863, a student's medical education will be held to commence from the date of his passing this preliminary examination.

“By referring to the regulations of the College of Surgeons of England, it will be found that the Council of the College has recognised our preliminary examination, and accepts certificates of attendance upon our courses of lectures and hospital.

“This question has been recently brought before our Faculty by Dr Elkington, one of the assistant-surgeons of the Grenadier Guards, who recently applied at the Medical Registration Office to have his McGill degree registered; this was refused, in conformity with rule 2, sect. A, of the printed regulations of the Council.

“Several army surgeons, after attending lectures, obtained degrees in the course of May last from this University; and as the Director-General of the Medical Department of the Army will not recognise any professional title until registered, our Faculty has instructed me, as its dean, to make this application for recognition to the Council of Medical Education and Registration.—I have the honour to be, Sir, your most obedient servant,

“GEO. W. CAMPBELL, A.M., M.D.,

“Dean of the Medical Faculty of McGill University, Montreal.

“To Dr Francis Hawkins, Registrar, Med. Council.”

“General Council of Medical Education and Registration of the United Kingdom,
“32 Soho Square, London, W., Sept. 3, 1862.

“Sir,—I have had the honour to receive your letter, dated 22d ult., and shall take the earliest opportunity of laying it before the General Medical Council.

“In the meantime I beg to refer you to the Medical Act, 1858 (a copy of which is bound up with every copy of the Medical Register), from which you will perceive that the Medical Council has no power to order the registration of any foreign or

colonial degree, unless it were obtained after regular examination, *and before the passing of the Medical Act*. The truth is, that the Medical Act was not intended to legalize foreign or even colonial degrees within the United Kingdom, except so far as was necessary to prevent the Act from having a retrospective effect on persons already practising on such degrees within the United Kingdom.

"The right of registration was to be given by the Act only to the degrees and diplomas of the universities and colleges of the United Kingdom which are enumerated in Schedule A to the Act, and over which bodies the Medical Council can exercise, under the Act, certain visitorial powers.

"But it is clear that the Act could not give such powers to the Council, or at least that the Council could not exercise them, over foreign or even colonial universities and colleges.

"It is open, however, to those universities and colleges to make arrangements for the recognition of their degrees and diplomas with the bodies mentioned in the Schedule A above referred to.

"These bodies may be considered as the portals to the Medical Register.

"For the attainment, therefore, of the object for which your letter of the 22d of August appears to have been written, I would venture to refer you to the Universities and the Colleges of Physicians and Surgeons of the United Kingdom.—I have the honour to be, Sir, your most obedient servant,

FRANCIS HAWKINS,

"Registrar of the General Medical Council.

"Geo. W. Campbell, Esq., A.M., M.D.,

"Dean of the Medical Faculty of McGill University, Montreal."

The Committee recommend that the Council intimate that they have no power to grant the application.

2dly, An application from Codrington College, Barbadoes, to have the "testamur" granted by that College received among those regarded as a sufficient equivalent for the preliminary examination of the licensing bodies.

The Committee are satisfied that the qualifications required by that College are amply sufficient to warrant the Council to grant to it the privilege which is sought.

3dly, A request from the Tasmanian Council of Education, that the "Degree of Associate of Arts," granted by that body, be inserted among the educational qualifications mentioned in the third section of the Report of the General Committee on Education, adopted by the Council on the 6th July 1861.

The requirements for this degree are very high, comprising an examination on the following ten subjects:—1. English; 2. Latin; 3. Greek; 4. French Grammar, or Italian; 5. Pure Mathematics; 6. The Elementary Principles of Hydrostatics and Mechanics; 7. The Elements of Chemistry; 8. Zoology and Botany; 9. Drawing and Architecture; 10. Geology. The candidate is required to satisfy the examiners that he possesses a competent knowledge of four of these at least, of which Latin or Pure Mathematics must be one.

It thus appears that the regulations do not render *both* Latin and Mathematics imperative, and the Committee cannot recommend the Council to sanction any certificate which does not bear that the holder has passed a satisfactory examination in Latin as well as Mathematics. As, however, many students will probably pass in both these branches, their degree might be accepted if accompanied by a certificate that the Examiners were satisfied with the knowledge of the applicant in these two departments in each particular case.

ALEXANDER WOOD, *Chairman*.

Moved by Dr Alexander Wood, seconded by Dr Apjohn, and agreed to,—*"That the Report on the Recognition of Foreign or Colonial Degrees or Examinations be received, and entered on the minutes."*

Dr Alexander Wood presented the Report of the Committee on Special Claims for Registration.

REPORT.

Only two special claims have been presented:—

1st, Application from George Frederick Collier to have his degree of M.D., conferred by the University of Leyden on 15th December 1828, registered. The application is accompanied by a certificate from the Dean of the Medical Faculty of the University of Leyden, certifying that the degree was conferred after regular examination.

The Committee recommend the Council to grant the application.

2dly, Application from Dr Peter Smith to have his degree of M.D. from the University of Pennsylvania, conferred 4th April 1845, registered.

The Committee have satisfied themselves that Dr Smith was in practice in the

United Kingdom prior to the passing of the Medical Act; and under very peculiar circumstances they recommend the Council to sanction the registration of his qualification.

ALEXANDER WOOD, *Chairman*.

Moved by Dr Alexander Wood, and seconded by Dr Apjohn,—"That the Report on Special Claims for Registration be received, and entered on the minutes."

Dr Embleton presented the Report of the Committee on Returns from the Licensing Bodies.

REPORT.

Your Committee, in presenting the Report on Returns from Bodies in Schedule A, in compliance with the 16th and 23d Recommendations of the Report of the General Council on Education (1861), beg to state,—

1. That the Returns, in compliance with Recommendation 16, have, since the report of last year, been received by the Registrar from all the bodies named in Schedule A, and have been sent by him to each member of the General Council.

These returns contain, as was recommended by your Committee last year, the latest regulations of the bodies named in Schedule A, as regards both preliminary and professional education and examination; and the degree of their conformity or nonconformity with the Recommendations of the Report of the General Council on Education 1861, is shown in the Table already laid before the Council, and which, in a corrected form, is appended to this Report.

By this Table, in which are incorporated some remarks by members of the Council, it will be observed that the amount of conformity in the printed regulations is considerable; and your Committee are glad to be enabled to state that several of the seeming nonconformities only faintly exist in practice, and that there is a general belief pervading the bodies in Schedule A, as ascertained from their representatives, that a still nearer approach to conformity is attainable.

2. That returns, in compliance with the 23d Recommendation, have been received from all the bodies in Schedule A. The result of these returns may be seen in the accompanying Table, which shows the number of students examined, and the number rejected by each of the licensing bodies.

Table of Returns under Recommendation 23.

LICENSING BODIES.	PASSED.		REJECTED.	
	1st EXAM.	2d EXAM.	1st EXAM. Number.	2d EXAM. Number.
Royal College of Physicians, England . .	60	65	5	22
Royal College of Physicians, Edinburgh .	75	81	10	10
King's and Queen's Coll. of Phys., Ireland;				
Passed for diploma on old regulation . .	...	33	...	10
Passed 1st examination on new regulation	2	...	1	...
Royal College of Surgeons, England . . .	513	462	142	61
Royal College of Surgeons, Edinburgh . .	143	123	23	15
Faculty of Phys. and Surg., Glasgow . . .	12	78	2	10
Royal College of Surgeons, Ireland . . .	105	105	23	23
Society of Apothecaries, London	121	343	7	40
Apothecaries' Hall, Dublin	23	23	4	2
University of Oxford	3	0	2	0
University of Cambridge	7	2	1	1
University of Durham	0	3	0	0
University of London	23	17	8	5
University of Edinburgh	113	109	77	16
University of Aberdeen, 3d examination .	(1st) 49 (2d) 36	(3d) 28	(1st) 8 (2d) 10	(3d) 4
University of Glasgow	82	48	11	4
University of St Andrews	15	580	3	65
University of Dublin	7	17	0	1
Queen's University in Ireland	36	34	6	5
Totals	1425	2151	343	295

3. The registers of students, with explanatory letters, having been referred to them (No. 48, Minutes of General Council), your Committee further present the subjoined table of the numbers of students registered according to Recommendations 8 and 9, during the winter of 1862, by each of the bodies in Schedule A that keeps a

register of students, showing the numbers registered before and after the expiration of the fifteen days recommended by the Council to be allowed for registration. From this table it will be seen that the numbers registered after the expiration of the fifteen days are comparatively few; satisfactory letters explanatory of the reasons for such delays have been sent in from the various bodies in whose registrations those delays have occurred, and doubtless next year this table will be still more in accordance with your recommendation.

Register of Students, 1862, under Recommendations 8 and 9.

LICENSING BODIES.	Before the 15 days.	After the 15 days.	Total.
Royal College of Physicians, London	169	37	206
Royal College of Physicians, Edinburgh . . .	No register.		
King's and Queen's College of Phys., Ireland .	No register.		
Royal College of Surgeons, England	1401	26	1427
Royal College of Surgeons, Edinburgh	231	...	231
Faculty of Physicians and Surgeons, Glasgow .	106	...	106
Royal College of Surgeons, Ireland	149	3	152
Apothecaries' Society, London	1010	...	1010
Apothecaries' Hall, Dublin	No register.		
University of Oxford	No register.		
" " Cambridge	18	1	19
" " Durham	15	...	15
" " London	No register.		
" " Edinburgh	367	..	367
" " Aberdeen	61	...	61
" " Glasgow	258	3	261
" " St Andrews	2	2	4
" " Dublin	16	5	21
Queen's University, Ireland	266	9	275
Totals	4069	86	4155

4. Your Committee, lastly, submit a table showing how far the Recommendation No. 1. of the Council has been carried out.

Table showing the Number of Students registered by the Licensing Bodies, October and November 1862, who have or have not passed a Preliminary Examination before commencing Professional Study.

LICENSING BODIES.	No. of Students passed Prelim. Examination.	No. of Students who have not passed Prel. Examin.	Total.
Royal College of Physicians, London	212	3	215
Royal College of Physicians, Edinburgh . . .	No register.		
King's and Queen's College of Phys., Ireland .	No register.		
Royal College of Surgeons, England	593	834	1427
Royal College of Surgeons, Edinburgh	Not stated.		230
Faculty of Physicians and Surgeons, Glasgow	89	17	106
Royal College of Surgeons, Ireland	*119	48	167
Apothecaries' Society, London	355	1390	1745
Apothecaries' Hall, Dublin	No register.		
University of Oxford	No register.		
" " Cambridge	19	3	22
" " Durham	15		15
" " London	No register.		
" " Edinburgh	365	32	367
" " Aberdeen	144	5	149
" " Glasgow	240	21	261
" " St Andrews	4		4
" " Dublin	24		24
Queen's University, Ireland	298	5	303

* 1, Examined by an American University.

On the whole, your Committee regard as satisfactory the results brought out in these tables, so far as they go, and feel confident that under a simpler mode of registration, and with a little more attention, these results will in future be found more completely in conformity with the recommendations of the Council.

D. EMBLETON, *Chairman*.

Moved by Dr Storrar, seconded by Dr Sharpey, and agreed to,—“That the Report of the Committee on Returns from the Licensing Bodies be received, and referred to the Education Committee.”

The Council resolved itself into a Committee on Education.

Moved by Dr Andrew Wood, and seconded by Dr Thomson,—“That four years of professional study, embracing at least four winter sessions, or three winter and two summer sessions at a medical school be required, dating from the first registration.”

Dr Andrew Wood, by permission of the Council, withdrew his motion for the present session.

Moved by Mr Teale, seconded by Dr Embleton, and agreed to,—“That the following more simple form of registration of students be adopted in the place of that which stands in the Education Report of 1861 :—

No.	Name.	Date of Registration.	Place of Study.	Arts Examination and Date.

Moved by Dr Acland, and seconded by Dr Andrew Wood,—“That the words ‘medical school’ in the recommendations of the Medical Council, shall be held to mean any institution where courses of lectures are delivered, or systematic practical instruction given in departments of practical medicine, or of the sciences accessory to it, such institution being recognised by any of the bodies named in Schedule A.

Amendment moved by Mr Hargrave, and seconded by Dr Stokes,—“That the consideration of this motion be postponed to the next session of the Council.”

Amendment carried.

The Council having resumed—

The adjourned debate was resumed upon Dr Leet’s motion (see Minutes, No. 49, sect. 5), which, by permission of the Council, was amended as follows:—“That this Council is of opinion that registered licentiates of the Apothecaries’ Company of Dublin are, as apothecaries, entitled to practise medicine in Great Britain and Ireland.”

After some discussion, on the motion of Dr Corrigan the debate was adjourned.

MINUTES OF MEETING, Tuesday, 2d June.

The adjourned debate was resumed, on the motion of Dr Leet, seconded by Mr Syme, viz.,—“That this Council is of opinion that registered licentiates of the Apothecaries’ Company of Dublin are, as apothecaries, entitled to practise medicine in Great Britain and Ireland.”

And on the amendment, moved by Dr Aquilla Smith, and seconded by Dr Corrigan, viz.,—“That the General Medical Council having already had before them the question referred to in the memorial from the Apothecaries’ Hall of Ireland on the several occasions, viz., 9th August 1859; 19th June 1860; 4th July 1861; and 19th May 1862, do not consider it expedient on their part to reopen the question. That conflicting legal opinions on the question have, at various times, come before the Council, and that the Registrar be directed to forward to the Director-General of the Army, for his information, the memorial of the Company of the Apothecaries’ Hall of Dublin, with the legal opinions of the Right Hon. Joseph Napier, Attorney-General for Ireland, 27th March 1845; the Right Hon. Sir Richard Bethel, Attorney-General for England, 15th February 1860; Mr William Smith, 25th June 1861; the Right Hon. Thomas O’Hagan, Attorney-General for Ireland, and James A. Lawson, Solicitor-General for Ireland, 11th February 1863.” Amendment put and negatived.

Dr A. Smith required the names of the majority and minority to be entered on the minutes.

Majority.—Dr Burrows, Mr Cooper, Dr Bond, Dr Embleton, Dr Storrar, Dr Alexander Wood, Dr Fleming, Mr Syme, Dr Thomson, Mr Hargrave, Dr Leet, Sir Charles Hastings, Dr Sharpey, Dr Christison.

Minority.—Mr Arnott, Dr Acland, Dr Andrew Wood, Dr A. Smith, Dr Apjohn, Dr Corrigan, Mr Lawrence, Mr Teale, Dr Stokes.

The motion was then put, and carried.

Dr A. Smith required the names of the majority and minority to be entered on the minutes.

Majority.—Dr Burrows, Dr Bond, Dr Embleton, Dr Storrar, Dr Alexander Wood, Dr Fleming, Mr Syme, Dr Thomson, Mr Hargrave, Dr Leet, Sir Charles Hastings, Dr Sharpey, Dr Christison.

Minority.—Mr Arnott, Dr Andrew Wood, Dr A. Smith, Dr Apjohn, Dr Corrigan, Mr Lawrence, Mr Teale, Dr Stokes.

Dr Alexander Wood presented the report of the committee appointed to consider the requirement on the part of the Poor-law Commissioners of Ireland of a license in midwifery from candidates for employment under them.

The Committee on the Requirements of the Commissioners for Administering the Laws for Relief of the Poor in Ireland have to report—

That by the general orders of that body no person can be appointed as a medical officer of a dispensary or workhouse under their control without possessing a degree or license to practise medicine, a diploma or license to practise surgery, "and also a certificate from some board or court of examiners, or other body duly authorized to grant the same, of his possessing a competent knowledge of midwifery." A case was brought under the notice of the Committee, of a gentleman who had obtained a license in medicine from the Royal College of Physicians of Edinburgh, and a license in surgery from the Royal College of Surgeons of England. This gentleman's qualifications were considered by the Irish Poor-law Commissioners to be incomplete, "inasmuch as he does not possess a certificate from some board or court of examiners, or other body duly authorized to grant the same, of his possessing a competent knowledge of midwifery." It will be seen in Schedule A to the Medical Act, that the only body therein empowered to have a license in midwifery granted by them entered on the Register, is the Royal College of Surgeons of England, so that, practically, every applicant for employment under the Poor-law Board in the land, would, if the order above quoted were duly enforced, have to repair to London for this extra qualification.

Your Committee are indeed aware that an application was made to the Executive Committee, by the Colleges of Physicians and Surgeons in Ireland, to have certain licenses in midwifery conferred by them entered on the Register, which the Executive Committee, on the 7th of March 1859, refused to do. This decision appears on the Minutes of the Executive Committee in the following terms :—

"The Executive Committee gave direction that in the General Register no license in midwifery should be entered except that conferred by the Royal College of Surgeons of England, because they are unable to find authority in the Medical Act for the registration of any other midwifery license."

Subsequently, however, on the 31st of May 1859, on receipt of a letter from a solicitor employed by the College of Physicians and Surgeons of Ireland, couched in peremptory terms, the Executive Committee yielded, and directed these qualifications to be entered in the Register.

The Executive Committee appears to have consented to yield to the pressure thus applied, in consequence of a legal opinion obtained by them from Sir Hugh Cairns and Mr Arthur Hobhouse, from which the following is an extract :—

"1. Whether the licentiates in midwifery of the King and Queen's College of Physicians in Ireland, and of the Royal College of Surgeons in Ireland, can lawfully be entered on the Register?

"2. Whether the General Council can exercise towards these licentiates any power of dispensing with the provisions of the Act?

"1. It appears to us that no question of this kind can arise with respect to the Royal College of Surgeons in Ireland; for by the extracts from the Charters which have been furnished to us, it would seem that this body does not grant any licenses in midwifery except to persons already being fellows or associates of the body, so that all their licentiates in midwifery must possess a previous and higher title to be registered. The case is different with the College of Physicians, who have power

to examine and license *all* midwives. The question must turn on the meaning to be ascribed to the word 'licentiate,' in Clause 3 of Schedule A.

"We are of opinion that the sounder construction of the Act is to give to the term its literal and full meaning, unless there is something to forbid it, either in the general scope of the Act or in its terminology.

"The general scope of the Act militates rather in favour of than against the extended construction of the term; for it seems not to be the intention to disqualify any duly qualified practitioner, but to give to every one licensed by a duly authorized body a recognised position in that calling to which he is licensed.

"There is very little in the Act to throw light on the particular term used. The only instance in which it is used in connexion with midwifery is in Clause 4 of Schedule A; and as we are given to understand that the general licentiates of the English College of Surgeons are, and are styled, fellows or members, and that it has no licentiates so styled, except its licentiates in midwifery, we do not see that any argument in favour of restricting the use of the term in Clause 3 can be drawn from its use in Clause 4.

"In each case the terms used are sufficient to describe all the practitioners acting under the authority of the body which is spoken of.

"The result is that we are of opinion that every person who has received a license is, for the purposes of this Act, a licentiate in that art to which his license applies.

"2. The answer to this question depends upon the construction of Schedule A, and is governed by the same considerations as the answer to Question 1."

This opinion seems to be not very decided; and your Committee are of opinion that, unless compelled by law to insert these qualifications, the General Council should refuse to do so, as they are certainly injurious to the interests of other bodies, and not calculated to elevate the character of the profession.

In conclusion, your Committee would recommend—

1. That the President be requested to correspond with the Home Secretary, in order to have the Order of the Irish Poor-law Commissioners rescinded.

2. That the bodies at present granting licenses in midwifery should be requested to surrender this privilege in the event of a new Medical Act being obtained.

3. That should this be found impracticable, the amended Medical Act should be so framed as to confer the power of granting certificates in midwifery on all bodies which duly examine in that department of medicine.

4. That the Executive Committee be instructed to take the opinion of counsel unconnected with Ireland, on the propriety of continuing to register those qualifications in midwifery which do not appear in Schedule A to the Medical Act.

ALEXANDER WOOD, *Chairman*.

Moved by Dr Alexander Wood, seconded by Dr Leet, and agreed to,—“That the report of the Committee on the requirements of the Commissioners for administering the laws for the relief of the poor in Ireland be received and entered in the Minutes.”

The report of the Special Committee, appointed by the General Council on 27th May 1863, relative to the Pharmacopœia, was taken into consideration.

Moved by Dr Christison, seconded by Dr Sharpey, and agreed to,—“That the sum of £94. 10s. be voted to Dr Apjohn for chemical investigations connected with the Pharmacopœia.”

Moved by Dr Christison, seconded by Dr Sharpey, and agreed to.—“That the sum of £174. 7s. be voted to Dr Douglas Maclagan, for chemical investigations connected with the Pharmacopœia.

Moved by Dr Christison, seconded by Sir Charles Hastings, and agreed to.—“That £150 be voted to Dr Garrod, as general secretary of the Pharmacopœia Committee, and secretary to the London Sub-Committee; £100 to Dr Charles Wilson, and £100 to Dr Aquilla Smith, as secretaries respectively of the Edinburgh and Dublin Sub-Committees.”

Moved by Dr Christison, seconded by Dr Acland, and agreed to,—“That to the principal editor in London, Dr Farre, £75 be voted, to be received when the Pharmacopœia is published; and that to each of the Edinburgh and Dublin editors, Dr Maclagan and Dr Neligan, £50 be voted, to be received when the Pharmacopœia is published.”

Moved by Mr Syme, and seconded by Mr Hargrave,—“That £500 be voted to each of the Sub-Committees, for preparing the Pharmacopœia, as a honorarium for their time and services.”

The names of the gentlemen composing the Sub-Committees are as follows:—

London Pharmaceutical Sub-Committee: Dr Watson, Sir James Clark, Dr Farre, Dr Garrod, Mr Green, Mr Nussey, Mr Squire.

Edinburgh Pharmaceutical Sub-Committee: Dr Christison, Dr Begbie, Dr Sellar, Dr Wilson, Dr Sanders, Dr MacLagan, Dr Andrew Wood, Mr Syme, Mr Macfarlane, (afterwards, on his death, Mr Gardner), Mr Robertson.

Dublin Pharmaceutical Sub-Committee: Dr Apjohn, Dr A. Smith, Dr Williams, Dr Neligan, Dr Barker, Dr Leet.

Amendment moved by Dr Andrew Wood, and seconded by Dr Leet,—“That payments to the Sub-Committees on account of the Pharmacopœia be delayed till next session of the Council, when the Pharmacopœia shall have been published, and the Council shall be enabled to form a correct judgment as to the money they may be able to vote as a honorarium to them.

The amendment was put and negatived.

Dr Andrew Wood required that the names of the majority and minority be entered, on the minutes.

Majority.—Mr Arnott, Mr Cooper, Dr Acland, Dr Bond, Dr Storrar, Dr Fleming, Mr Syme, Dr A. Smith, Mr Hargrave, Dr Apjohn, Dr Corrigan, Dr Sharpey, Mr Teale, Dr Stokes.

Minority.—Dr Embleton, Dr Alexander Wood, Dr Andrew Wood, Dr Thomson, Dr Leet.

The motion was then put, and agreed to.

Dr Andrew Wood required that the names of the majority and minority be entered on the minutes.

Majority.—Mr Arnott, Mr Cooper, Dr Acland, Dr Bond, Dr Storrar, Dr Fleming, Mr Syme, Dr A. Smith, Mr Hargrave, Dr Apjohn, Dr Corrigan, Dr Sharpey, Mr Teale, Dr Stokes.

Minority.—Dr Embleton, Dr Alexander Wood, Dr Andrew Wood, Dr Leet.

MINUTES OF MEETING, *Wednesday, 3d June.*

The consideration of the Report of the Special Pharmacopœia Committee was resumed.

Moved by Dr Christison, seconded by Dr Andrew Wood, and agreed to,—“That the price of the Pharmacopœia be 7s. 6d. for the large, and 5s. for the small edition, subject to the approval of the Treasury.”

Moved by Mr Syme, and seconded by Dr Andrew Wood,—“That the several sums voted for the publication of the Pharmacopœia shall be paid at the end of six months from the time of its publication.”

Amendment, moved by Mr Arnott, and seconded by Dr Acland,—“That the treasurers be authorized, under the direction and sanction of the Executive Committee, to advance such sums of money as may be necessary to discharge the expenses incurred in preparing, printing, and publishing the Pharmacopœia.”—Amendment put, and carried.

Moved by Mr Teale, seconded by Dr Smith, and agreed to,—“That Dr Christison be requested to prepare and publish an explanatory statement of the forthcoming Pharmacopœia, showing its composition, the principles of its construction, the changes introduced, and the necessity under which the members of the several branches of the medical profession will lie of making themselves acquainted with the British Pharmacopœia, in place of the Pharmacopœias which it is to supersede.”

Moved by Dr Christison, seconded by Mr Hargrave, and agreed to,—“That the Council adopt the recommendations of the Special Pharmacopœia Committee, which provide for the preparation and publication of the new editions of the Pharmacopœia.”

Moved by Dr Sharpey, seconded by Dr Christison, and agreed to,—“That it be an instruction to the Executive Committee to watch the progress of the Bill on Weights and Measures, now before Parliament, and in the event of its passing the second reading, to take such steps, by petition in the name of the Council, or otherwise, as may seem to them best calculated to prevent the enactment of any statutory restriction or obligation affecting the use of weights and measures in pharmacy, unless with such provisions as shall obviate the risk of its inconvenient or premature enforcement.”

Moved by Dr Burrows, seconded by Sir Charles Hastings, and agreed to,—“That the Report of the Finance Committee be adopted.”

Moved by Dr Alexander Wood, seconded by Mr Hargrave, and agreed to,—“That

the Standing Orders in regard to the 'order of business,' regulating the manner of taking the votes, be amended, as follows:—

"1. That if there be but one amendment, the vote shall be first taken upon it; and if it is negatived, then on the original motion.

"2. That if there be more than one amendment, the amendment last moved shall be first put to the vote; and in the event of its being negatived, then the amendments shall be put in the inverse order to that in which they had been proposed. If all the amendments are negatived, the vote shall then be taken on the original motion."

Moved by Dr Alexander Wood, seconded by Dr Leet, and agreed to.—"That the Registrar be directed to send annually, within one month after the meeting of Council, to the various bodies in Schedule A, the names of those who, during the meeting of the Council, have been struck off the Register by order of the Council, and to request the attention of each body to regulation 7, chap. viii., of the Standing Orders, which shall be altered as follows:—That the Council recommend that any person whose name has been once removed from the Register shall not be admitted to examination for any new qualification, without the consent of the General Medical Council."

Moved by Mr Teale, seconded by Mr Hargrave, and agreed to.—"That the Report of the Committee on Recognition of Colonial and Foreign Universities be adopted."

Moved by Dr Corrigan, seconded by Dr A. Smith, and agreed to.—"That the Registrar be requested to apply to the several licensing bodies mentioned in Schedule A to the Medical Act, for copies of the Charters or Acts of Parliament under which those licensing bodies issue degrees or licenses, and possess or exercise any other powers in reference to medicine, surgery, midwifery, or pharmacy."

Moved by Dr Corrigan, seconded by Dr A. Smith, and agreed to.—"That it be an instruction to the Executive Committee to obtain returns of the regulations relative to education and examination from the several licensing bodies mentioned in Schedule A, to ascertain in what particulars the regulations of any of those bodies may differ from the recommendations of the General Medical Council; to request from those corporate bodies whose regulations so differ such observations or explanations as they may deem fit to offer; and to submit the correspondence, with their report thereon, to the next meeting of the General Council."

Moved by Dr Stokes, seconded by Mr Syme, and agreed to.—"That, looking at the various curricula of professional education enforced by the licensing bodies enumerated in Schedule A to the Medical Act, the Council are of opinion that the number of courses of lectures required to be attended might be reduced with advantage, so as to give the student a larger amount of time for self-education. That the overloading of the curriculum of education, whether as to the number of courses, or of lectures in particular courses, must be followed by results injurious to the student."

Mr Lawrence required that the names of the majority and minority be entered on the minutes.

Majority.—Mr Arnott, Mr Cooper, Dr Acland, Dr Bond, Dr Embleton, Mr Syme, Dr A. Smith, Dr Leet, Dr Corrigan, Sir C. Hastings, Mr Lawrence, Mr Teale, Dr Stokes.

Minority.—Dr Andrew Wood, Dr Thomson, Mr Hargrave, Dr Christison.

Moved by Mr Syme, seconded by Dr Christison, and agreed to.—"That the Medical Council resolve to take into consideration, at the next meeting, the propriety of recommending a reduction in the number of courses of lectures which the regulations of the various licensing boards at present render obligatory. That, with the view of facilitating the consideration of this subject, the General Council request to be favoured with the opinion of the bodies in Schedule A, on the possibility and propriety of this, before next meeting."

Moved by Dr Acland, seconded by Mr Hargrave, and agreed to.—"That the various resolutions and recommendations of the Council, affecting directly the subject of medical education, be separately printed; that a copy be furnished to the several bodies named in Schedule A; to the members of General Council, and other persons named by the President; and that written communications be invited concerning them from those to whom they may be sent."

Moved by Mr Teale, seconded by Mr Hargrave, and agreed to.—"That the Council recommend to the various licensing bodies named in Schedule A of the Medical Act, the consideration of the *ad-eundem* principle in the granting of degrees and licenses, with a view to the reduction of the number of examinations on the same subject which the student is now frequently obliged to undergo in order to obtain a plurality of qualifications."

Moved by Dr Andrew Wood, seconded by Mr Teale, and agreed to.—"That the Medical Council, having by the Act of Incorporation a corporate seal, the bylaws

in reference to it, which have been prepared by the solicitor, be adopted by the Council, and that it be remitted to the Executive Committee to carry them out."

Moved by Dr Embleton, seconded by Dr Thomson, and agreed to,—“That it be referred to the Branch Councils to report to the next meeting of the General Medical Council as to the simplest mode of registering medical students.”

Moved by Dr Andrew Wood, seconded by Dr Christison, and agreed to,—“That the Standing Order which provides for the rising of the Council at six o'clock be suspended for this day.”

Moved by Dr Corrigan, and seconded by Dr A. Smith,—“That the Executive Committee be requested, in accordance with the recommendation of the Report of the Medical Acts Amendments Committee (see Minutes, 1st June 1861), to have a Bill drafted embodying the amendments prepared; that copies of such Bill be forwarded to the Branch Councils for their observations thereon; that the Executive Committee cause to be prepared for the next Annual Meeting of the General Council interleaved copies of such Bill, with all suggested amendments; and that the General Council at the same time desire it to be understood that they refrain at present from expressing any opinion on the amendments now proposed.”

First Amendment.—Moved by Dr Christison, and seconded by Mr Syme,—“That the Report of the Medical Acts Amendments Committee be recommitted.”

Second Amendment.—Moved by Dr Fleming, and seconded by Dr Thomson,—“That the Report of the Medical Acts Amendments Committee be forwarded to the Branch Councils for their observations thereon.”

Second amendment put to the vote, and carried.

Moved by Dr Andrew Wood, seconded by Mr Arnott, and agreed to,—“That the report of the Committee on appointments of members of the Council be received, entered on the minutes, and adopted by the Council.”

The Committee appointed by the General Council to consider what steps should be taken by the Council in relation to the retirement and election of its members, recommend that a book should be kept containing the names of the members of the Council, the bodies they represent, the date of appointment of each member, the term for which he was appointed, and the date of the death or retirement of each member; such book to be regularly kept up, so as at once to show the period at which each of the bodies having power to appoint should proceed to a new appointment; also, the same particulars with regard to members appointed by the Crown.

The Committee also recommend that a form for appointing members should be prepared, and sent by the Registrar to the Secretary of State, and to each body having power to appoint, two months before the expiration of the term of the existing appointment, so that the new appointment may be made to take effect from the day on which the old appointing shall expire.

The Committee submitted a form of such appointment.

Moved by Dr Andrew Wood, seconded by Mr Hargrave, and agreed to,—“That the case prepared at the meeting of the General Council in 1863, relative to the educational sections of the Medical Act, with the opinion of counsel thereon, be received and printed on the minutes.”

Moved by Dr Alexander Wood, seconded by Mr Syme, and agreed to,—“That the Council is of opinion that the matter referred to in a memorial presented by Dr Edwards Crisp, respecting the Carmichael prizes, is not within the powers of the Council as limited by the Medical Acts, and the Council therefore decline to enter on its consideration.”

Moved by Dr Alexander Wood, seconded by Mr Syme, and agreed to,—“That the Council is of opinion that the matter referred to in a memorial presented by Henry Holmes, M.D., M.R.C.S., of Bridgnorth, respecting the conduct of the Salopian Medico-Ethical Society, is not within the powers of the Council as limited by the Medical Acts, and the Council therefore decline to enter on its consideration.”

Moved by Dr Andrew Wood, seconded by Dr Embleton, and agreed to,—“That it be remitted to Dr Embleton, in conjunction with the Registrar, to prepare and print an index of all the Minutes, as well of the General Council and Executive Committee as of the Branch Councils.”

Moved by Dr Andrew Wood, seconded by Dr Thomson, and agreed to,—“That £200 of the General Registrar's salary of £500 be charged against the funds of the Branch Council for England.”

Moved by Dr Christison, seconded by Dr Andrew Wood, and agreed to,—“That the consideration of the report of the Committee on the requirements of the Commis-

sioners for administering the laws for relief of the poor in Ireland be deferred till the next meeting of the General Council."

Moved by Dr A. Smith, seconded by Dr Corrigan, and agreed to,—“That the Executive Committee be authorized to protect the copyright of the British Pharmacopœia, which is vested in the General Council."

Moved by Dr Corrigan, seconded by Mr Syme, and agreed to,—“That the Executive Committee be requested to direct their attention, and take such steps as may appear advisable to them, towards obtaining from Government a suitable place of meeting for the General Council."

Moved by Dr Andrew Wood, seconded by Mr Teale, and agreed to,—“That the Executive Committee consist of the President, Dr Burrows, Mr Arnott, Dr Acland and Dr Sharpey."

After some lighter business, the Council adjourned.

THEORY OF THE RIGHT HAND,—DR BUCHANAN'S REPLY TO DR STRUTHERS.

(To the Editor of the Edinburgh Medical Journal.)

SIR,—Dr Struthers' paper on "The Relative Weight of the Viscera," etc., which appeared in the last number but one of your Journal, was very gratifying to me in various ways. In the first place, I could not but feel proud that a physiologist of such deservedly high reputation as Dr Struthers should have done me the honour of introducing to the medical world a theory of the movements of the two sides of the body, which I brought forward some time ago, and communicated to some of the leading physiologists of this country. I thought it, however, the wisest course to bring the theory before the public, by submitting it, divested as much as possible of its medical garb, to the Philosophical Society of Glasgow, as being most likely to take an interest in questions purely physical. I know very well the small estimation in which such questions are at present held in medical circles. The physiology of the days of Haller has gone past. Questions that might have been deemed important by Borelli or Hales, and of which Barclay strove in vain to prolong the interest, have now lost all attraction. In the eyes of the present generation of medical men, no object larger than a millimètre can be expected to find favour, if, indeed, such an object did not pass wholly unobserved under the high powers to which their mental vision is habitually strained. It is not, therefore, surprising that a theory resting on mechanical principles, and coming into the world considerably more than a hundred years after the due time when it might have been expected to prove welcome, should have been nearly two years in existence before its birth was announced in any medical periodical; it may indeed be considered fortunate in having so soon found a patron and a friend.

It is still more gratifying to me that Dr Struthers should have deemed the subject worthy of the labour he has bestowed upon it; and that he should announce his intention of prosecuting it still further. I can only wish that his future labours may be as eminently successful as the present, which have laid a stable foundation for all further investigations connected with the equilibrium of the human body.

But there is no pleasure without alloy; and to counterbalance my satisfaction, I find a heavy weight in the opposite scale. Dr Struthers' paper renders it indispensable for me to request leave to appear in your pages in the

ungracious position of apparent antagonism to Dr Struthers, and for an object almost purely personal, and with which your readers can have little sympathy; for what interest can they have in a paper which they have never read? and for me to proclaim its imperfections is not the best way to induce them to do so. But there is no help for it, as every man is bound to uphold his own consistency; and I feel myself placed in a situation of much embarrassment by being represented in the pages of your Edinburgh Journal as saying now the very reverse of what for the last eighteen months I have taught at the University, and held out to the public of Glasgow.

Let it not, however, be supposed for a moment that I have any fault to find with Dr Struthers. An author can have no just cause to complain of the critic who quotes his *ipsissima verba*, and puts a fair and natural interpretation upon them. Now, this is what Dr Struthers has done, and I must add, in justice to him, that there are other passages which he might have quoted that bear a similar meaning. But it is nevertheless true, that these passages are at variance with the whole scope and express words of the more important part of the paper in which they are contained.

What explanation can be given of this anomaly? A simple one, although a little awkward for me. When a man makes up a new set of opinions upon any complex subject, he does not pass as it were by one bound from his old to his new position; but renouncing by degrees one prejudice or erroneous notion after another, he adopts sounder views as he sees his new path more clearly before him. Through exactly such a process of transition my own mind passed with regard to the subject of which my paper treats. Almost the whole of the first part of it was written about the time when I first promised to the students belonging to the University Medical Society to bring before them for discussion the question, "Why is the right hand stronger than the left?" At that time I saw clearly that the whole question in its most essential bearings was a physical one. But I still clung to the old notion of the centre of gravity being in the middle of the body, and perhaps attached more than due importance to the influence of the act of respiration, although I still believe it to be great. I could not then see the subject in any other point of view than that under which it first presented itself to me in connexion with the respiratory movements. But I saw it under a different aspect when I came to analyze the various muscular movements of the body, and contrast them as performed on the right and left sides; and in the description of these movements are embodied the more correct opinions which I ultimately formed as to the position of the centre of gravity and the conditions on which it depends. Of these anon—when I have finished my narrative. In my verbal addresses to the University Medical, and Philosophical Societies, the discrepancies of my manuscript occasioned me no embarrassment; but when I was required, in fulfilment of my promise, to print it, the case was very different. At the close of a busy session of college, to write over again the whole first part of the paper was impossible; but I erased and altered much, and flattered myself that I had succeeded in eluding the ken of all ordinary criticism, so that it was not without surprise that I saw Dr Struthers distil from his critical alembic the very opinions which, as I have stated, I once held, but had so long abandoned.

After the preceding statement, some of your readers may think that I might be excused from saying more than that the opinions contained in my paper do

not differ much from those at which Dr Struthers himself has arrived. But Dr Struthers' own criticism is not to be lightly gainsaid, and must be met with the respect which is due to it. Besides which, there may be some use in discussing opinions which, though similar, are not quite the same; for Dr Struthers, as appears to me, ascribes too much influence to "absolute weight," and attaches too little importance to "leverage," or "distance from the middle line;" while, according to my view, "leverage," or as I prefer to express it, "the relative position of the gravitating organs," determines the true position of the centre of gravity, and makes it incline to either side of the body irrespective of, and even in opposition to "absolute weight."

The opinions contained in the section of my paper, which treats comparatively of the muscular movements of the two sides of the body, may be judged of from the following quotation,—*Proceed.*, Glasgow Phil. Soc., vol. v. p. 154.

"To recapitulate, I have shown that the greater development of the muscles of the right side is due to the more frequent use made of them; and that this more frequent use, although in part proceeding from their greater development, is originally altogether independent of the condition of the muscles, and due to a mechanical cause, inherent in the constitution of the human frame—the *position of the centre of gravity to the right of the mesial plane*, and the further inclination of it backwards and to the right on deep inspiration, essential to muscular effort; and, lastly, I have explained in what way the position of the centre of gravity operates in giving predominance to the limbs of the right side."

It is clear from this passage that I hold the centre of gravity to be placed upon the right side, independent of the influence of respiration. Now, why is it, that the centre of gravity is situated upon the right side? In the adult a powerful cause is the greater development and consequent weight of the bones and muscles of the right side; but that is manifestly here excluded, for it is not an *inherent* cause, but one that comes on gradually after the second year of life. The only inherent cause is the weight and position of the viscera, as they stand related to each other, on the two sides of the body. As to the total weight of the viscera of the two sides I have certainly always believed, just as Dr Struthers seems to have done, and as I think every one who ever thought on the subject, after seeing and handling the viscera, must have done, that the viscera of the right side are heavier than those of the left,—although I willingly admit that this vague notion is very different indeed from the precise knowledge we now have, on the evidence of the balance, that the viscera of the right side are 22½ ounces heavier than those of the left. Still, however, even if the difference were much greater, I should err were I to infer from that circumstance alone that the centre of gravity lies to the right side; for, theoretically, it might just as well lie in the mesial plane, or upon the left side. The exact place of the centre of gravity is fixed by the relative positions of the gravitating organs. It is this last condition, as it presents itself on the two sides of the body respectively, which determines the position of the centre of gravity of each side; and from the two centres so determined the common centre is distant by two lines, which are inversely to each other as the total weights of the two sides of the body. Now, in both respects, by weight and by position, the Liver is the most important organ of the body in fixing, as it is in altering, the position of the centre of gravity.

It weighs upwards of three pounds avoirdupois, and it is fastened short to the ribs on the extreme verge of the right side. The precise question to be here determined, therefore, is—"Do I recognise in my paper the mechanical importance of this weighty viscus?" For the answer I confidently refer any competent reader to the whole part of the paper here under consideration. Let him read the comparative analysis of the various bodily movements on the two sides, and he will find that, in almost every instance, the position of the liver on the right side is either directly stated or manifestly implied to be the main cause of the superiority of the right side over the left. It is here impossible to quote, for the argument is so thoroughly inwrought with the whole text, that I should require to transcribe much more than either your space or my time would permit.

In conclusion, I would remark, that it is only in appearance, and, as it were, inadvertently, that Dr Struthers undervalues the mechanical influence of leverage, for he has devoted much labour to supplying us with the means of estimating it with precision. In this he has succeeded so completely as to enable us to determine the exact distance of the centre of gravity of the body from the mesial plane. Dr Struthers' method is to divide the visceral cavity longitudinally into four equal parts, and determine the weight of the viscera included in each. To adapt his table to the purpose here in view it must be somewhat modified. Instead of merely giving, with respect to the viscera that occur in pairs, the excess of weight in the region where it falls, the whole weight of each viscus must be given: and the viscera must be given as fully as possible; for which reason I have added the intestines, the bladder, the genitals, and the brain and spinal cord. With these additions, the total weight of the viscera is, on a rough estimate, 251·5 oz., or 15 lb. 11·5 oz., or somewhat more than one-ninth of the total weight of the body. The weight on the right side is 137·125 oz., and on the left 114·375. On the right side the weight of the viscera in the inner and outer divisions, omitting decimals, is 87 and 49, and on the left side 79 and 34 oz. I have assumed that the breadth of the visceral cavity between the false ribs is 10·5 inches, and that the centre of gravity of the viscera contained in each of the longitudinal divisions of it is situated in the middle of the division,—a supposition that cannot involve any sensible error. From these data it is easy to deduce, that the centre of gravity of the right side of the body, in so far as it depends on the weight and position of the viscera, is distant from the mesial plane 2·2581 inches, and that of the left side 2·1023. The distance between the two points thus determined is, therefore, 4·3604; and by dividing this line into two parts, which are to each other as the weights of the viscera on the two sides of the body, we find the common centre of gravity of the body, in so far as it depends on the weight and position of the viscera, to be ·277698, or somewhat less than three-tenths of an inch distant from the mesial plane towards the right side. Neither is it probable, that in the entire body the lateral deviation of the centre of gravity towards the right is much different. It must be less in the child just beginning to walk, in whom we suppose the bones and muscles of the two sides to be equal in weight. To keep it at the same point in a man of ten stone, if the weight were distributed in the same way, would require an excess of more than 12 lb. 11 oz. in the weight of the right side over the left. Of that excess more than 11 lb. 5 oz. would belong to the locomotive system; but less would suffice, owing to the more external position of this

portion of the excess. It must be obvious, therefore, that at every age the deviation of the centre of gravity towards the right side is but of small extent in the passive condition of the body. But in the active state, the eccentric position and great weight of the liver come into operation, as a powerful auxiliary, in causing the centre of gravity to swerve farther towards the right side. And all that is wanted is to show that there is originally a ground of preference of the one side before the other, and then the habit of using that side produces the subsequent development and increase of weight of the bones and muscles; just, as in the illustration which I have elsewhere employed, however small may be the difference between the two legs of the syphon, the whole current of liquid takes the direction of the longer limb.—I have the honour to be, Sir, yours, etc., etc.,

A. BUCHANAN.

I subjoin the Table from which the preceding numbers are taken :—

	Oz. Avoirdupois.	RIGHT.		LEFT.	
		Outer.	Inner.	Inner.	Outer.
Brain and Spinal Cord . . .	51		25.5	25.5	
Lungs	45	11.75	11.75	9.75	11.75
Heart	11		3.5	7.5	
Liver	52	24	20	8	
Spleen	6				6
Stomach	4.5			2	2.5
Intestines	54	13.5	13.5	13.5	13.5
Pancreas	3		1.25	1	.75
Kidneys	11		5.375	5.625	
Bladder and Genitals . . .	14		7	7	
	251.5	49.25	87.875	79.875	34.5
Total weight of Viscera, 251.5 oz.					
		Right Side.		Left Side.	
Inner Division,		87.875	.....	79.875	
Outer „		49.25	.....	34.5	
		137.125		114.375	
		114.375			
Excess on right side, . .		22.75			

EXTRACTS FROM THE REPORT OF THE MISSION-HOSPITAL (AMERICAN) AT CANTON, CHINA, FOR 1862.

BY JOHN G. KERR, M.D.

IN the course of the year, 24,693 patients were prescribed for. Of these, 6205 were seen in a branch-dispensary at Fuh-Shan, and 2560 in another dispensary at Shau-King. Of the whole number, about one-fourth were females. The outlay amounted to 1370 dollars; of this sum, 259 dollars were reimbursed by the sale of trusses and medicines.

“An unusual number of officers applied for treatment during the year. One of these, who was formerly a Tautai in the province of Kwangsi, came from Hunan, his native province, for the purpose of having his eyes operated on.

“Another officer of high rank was visited at his residence at the temple of Longevity, and was successfully treated for a dropsical affection of the lower extremities. The district magistrate of Tien-peh was under treatment for an

old stricture; and when he returned home, he took with him a young man who had formerly been connected with the Hospital, and who was able to continue the treatment.

"During the literary examinations, many scholars from various parts of the province visited the Hospital, to obtain medicine for themselves, or to consult about some case in their families. A remarkable case occurred, in which a literary man was indebted to the Hospital for his success in obtaining two degrees. Some time last year, an old man, above eighty years of age, was operated on successfully for cataract. After the annual examination in the spring, he called to inform me that he had been successful in obtaining the first degree, and to express his gratitude; 'for,' said he, 'how could I have seen to write, but for the doctor's skill?' After the recent examination for the second degree, the old man called again to communicate the joyful intelligence that he had been successful a second time, and to inform me that he was making preparations to go to Peking to compete for the third degree, which he had been assured by the literary chancellor he could obtain.

"Applications by letter for medicine and advice are not uncommon. One of the most remarkable examples occurred in the following translation of a letter from a native physician, which is also interesting as exhibiting the fact that foreign things are undergoing an investigation and exciting a degree of attention of which we have not been aware. Accompanying the letter from the native physician was a long one from the family, with a history of the case. I was compelled to say, in reply, that the plan proposed would be of no avail:—

"Dr Tsai Tui-yuen of Shun-teh district, sends his compliments to the physician of the Benevolent Hospital. I am aware, from having read Dr Hobson's "Physiology," that your honourable country has a mode of healing called "transfusion of blood." Now, for those who are exhausted and debilitated by long and dangerous sickness, this is certainly an excellent means of prolonging life. I have often advised my relatives and friends to go to your honourable hospital, but hitherto various reasons have prevented. Sometimes there has been urgent business, and sometimes they have been too poor to get persons who would supply the blood. In some cases the disease has been too severe to admit of going so far, and others have been prevented by fear; while there are many who delay so long as to be beyond the reach of remedies. These things make me very sad, and I am, therefore, exceedingly anxious to learn this excellent mode of healing diseases, so that I may be able to cure the sick who are far away, and thus assist in carrying out the intentions of your benevolent hospital, and in spreading abroad the remedies of western countries. But I feared that one so stupid as myself could not learn, and I did not know if your exalted brightness would be willing to teach.

"Now, I have a friend 50 years old, who, by reason of sorrow and anxiety, is very much weakened, and is daily becoming worse, so that I fear he is in danger of an attack of paralysis, and that, if transfusion of blood be not resorted to, he cannot be cured. He has two sons, who are willing to furnish the blood for their father. If this is done, the sons, without sustaining much injury, may be the means of restoring their father to life,—for the blood of the children is like that of the father, and therefore the best to be used. Having given a full account of the case, the patient's nephew is sent to the hospital to request the doctor to return a clear answer, and if he is willing to apply this remedy, then the patient will at once be taken to the hospital, and perhaps I myself will accompany him."

"The diseases treated have been such as are usually met with in hospitals in China. The most common are *diseases of the eye, intermittent fever, bronchitis, rheumatism, scrofula, syphilis, skin diseases, ulcers, dropsy, opium-smoking, dyspepsia*, etc. Among these there are two classes of disease—syphilis and opium-smoking—which constitute a very considerable proportion of the whole number prescribed for. Their prevalence is fearful. It is heart-sickening to reflect on the years of suffering, bodily and mental, which they inflict on their victims. Many cases of syphilis, in its primary form, are seen at the Hospital, but in the large majority it has become constitutional. It is then multifarious in its forms, and manifests its presence in many ways. A large proportion of the cases of rheumatism are syphilitic. Many of the obstinate and incurable ulcers are owing to the presence of the syphilitic poison, contracted, it may be, ten, twenty, or forty years before. Diseases of the bones are often owing to the same cause. The various inflammations of the eye, and

the different forms of blindness, are often traceable to the deleterious influence of the same poison. Scrofula, with its distressing consequences, and many forms of skin disease, are the fruit of the same evil seed. Sickly and scrofulous children, and their untimely death, are the remoter, and frequent results of the disease in parents.

"The other disease (as it may truly be called) has its train of woes in ruined health—craving appetite for the narcotic drug, which, after a time it refuses to satisfy—a deadening of all the means by which happiness and enjoyment are received—loss of property and reputation—mental imbecility, and death. It would seem that such terrible warnings would frighten men from dangers and calamities so sure to follow. Hundreds, who seek the cure of sufferings they might have avoided, seek in vain, because too late, or find only partial relief. In one case, the poison has contaminated and changed the whole body; and in the other, the moral courage is wanting to endure the struggle necessary to give up the use of the enticing drug. Very few cases of reformation from opium-smoking are met with, and these are ever in danger of yielding to the temptations which surround them. The experience and observation of several years convinces me that the only effectual means, aside from Christianity, of curing those addicted to the vice, is the establishment of asylums, on the plan of those for inebriates in Europe and America. I am compelled to confess that the good which results from our prescriptions for the unfortunate victims who apply for aid, is almost confined to the testimony which, as Christian missionaries, we are thus able to bear against a great evil, that brings misery and woe into so many households.

"The number of in-patients received was 275. Many of these were surgical cases, and some important operations have been performed, in some of which Drs Dods, Wong-Fun, and Carmichael, rendered important aid. The assistant, Kwan A-to, whose name for many years has appeared in these Reports, has performed most of the minor operations, and some of the more important and dangerous ones. A short account of some of the most interesting cases is given.

"*Dry Gangrene.*—Several cases of this affection have come under notice this year. Some of them occurred soon after an unusually long and severe period of cold weather in the month of February. In three cases the lower extremity was the part affected, and in one case the upper. The following is one of these:—A little girl, seven or eight years old, was brought to the Hospital, February 28, and left in the chapel among the out-patients. On examination, it was found that mortification had taken place in both feet. At the ankle in one foot, and just below it in the other, lines of demarcation were formed, and the disease arrested. In one of the feet the process of separation was almost completed, and only a single ligament required to be divided with the scissors, when the foot dropped off. In the other foot, the process of separation had extended through the soft structures, but the bones required to be separated with the knife. The cicatrization of the stumps advanced slowly on account of diarrhoea, from which the child suffered for several weeks. At the end of three months the healing was completed, and the little girl had quite recovered her health.

"*Tumour of Foot—Amputation.*—A woman, aged 34 years, from Shau-king-fu, has had a tumour growing on the right foot for ten years. It covered more than half of the back of the foot, and passed between the first and second metatarsal bones to the bottom of the foot, thus separating the great toe and second toe nearly two inches from each other. An attempt was made to remove the tumour and save the foot, but this was found to be impossible, and amputation was performed at the tarso-metatarsal articulation. The attempt to save the foot made the operation a long and severe one, and the patient was very much exhausted. Reaction was attended with fever, which continued several days. There was some sloughing of the edges of the flap. Finally the patient's health improved, the wound gradually healed, and she was able to walk with the assistance of a cane.

"*Ulcer of the Foot.*—A young woman, aged 16 years, from Pwanyü district,

was admitted with a large ulcer on the left foot, involving the great toe. The foot was twice the natural size, and the ulcer, which was three inches in diameter, discharged a most offensive fluid. Its surface was covered with a thick coat of granulations, resembling the papillæ of the mucous membrane. It had continued for fifteen months, and had resisted all efforts to heal it. In order to heal an ulcer of the peculiar character of the one here presented, it was necessary to destroy the surface, where unhealthy action had lasted so long. The best method to do this was with a red-hot iron. Several irons, suitable for the purpose, were prepared, and applied, one after another, at a red heat, until the whole surface was well seared over. This would have been a painful process, but for chloroform. Poultices were then applied, and the foot kept in an elevated position. In a few days the swelling of the foot was reduced, the burned slough came off, and left a healthy granulating surface, which gradually healed over. The cure was not quite complete when the patient left the Hospital.

"Circumcision and Calculi in the Prepuce.—Two cases of phymosis have been operated on during the year, in which calculi were found in the prepuce. The first was a patient, aged 38, from Sin-hwui district. The prepuce was greatly thickened and enlarged, and the presence of calculi was easily discovered with a probe. The operation was performed July 11th. It consisted in making a crucial incision, so as to remove the calculi, after which circumcision was performed, by which the superfluous thickened skin was removed. The calculi were two in number, and the weight of both was 1 ounce, 2 drams, and 2 scruples. The diameters of one were $1\frac{1}{2}$ by $1\frac{1}{8}$ inch. It had two concave facets, one on each side. One was smooth, and on it had rested the other stone. The other facet was partly covered with deposit, and evidently had been used by the second stone at some former time. The second stone was $1\frac{1}{2}$ inch in diameter, and was almost a perfect double convex lens in shape. One of its sides, where it rested on the first stone, was worn quite smooth. It is a remarkable circumstance that these two calculi, in such a situation, and rubbing upon each other, should have taken the shape they did.

"The second case was that of a fortune-teller, aged 47, from Fuh-shan. The prepuce was thickened and condensed, and the opening was so much contracted as to make urination very difficult. There was also adhesion to the gland. Circumcision was performed, and four small calculi were found lodged in cells in the condensed tissue of the prepuce.

"Ravages of Syphilis.—A most loathsome case of the ravages of syphilis, in a debilitated constitution, was seen in a man about 30 years old. The penis was entirely gone, and a large opening was made into the bladder. Urine, mingled with blood and pus, was constantly dribbling from the ulcer, and the fetor was intolerable. The inguinal glands were on the point of suppuration. He seemed to be nearly moribund, when I saw him.

"Four pupils have been under instruction during the year. Two of them have been connected with the Hospital long enough to be quite familiar with its duties, and to be of much assistance in dispensing medicines.

"It is considered an important part of the objects of the Hospital to educate young men in the science and art of medicine and surgery. This cannot now be done to the extent desired, but the practical knowledge acquired by the pupils is such as places them far in advance of native physicians in the treatment of many forms of disease, and especially in every department of surgery."

ST ANDREWS—CHAIR OF MEDICINE.

At a meeting of the University Court of the University of St Andrews, held on the 23d ultimo, Oswald Home Bell, M.D. Edin., F.R.C.S.E., was appointed to the Professorship of Medicine in the University of St Andrews, vacant by the retirement of Dr Day.

EATABLE BIRDS' NESTS.

By Dr STANISLAS MARTIN.

THERE is no longer any doubt regarding the nature of the eatable nests of the Chinese swallow; they consist of a concrete mucus which the bird disgorges only at the period of incubation, for the purpose of lining its nest. The *hirundo esculenta* is completely black; it is never found at any great distance from the seashore, and is met with not only in China, but in Cochin-China, Java, and other of the islands of the Indian Archipelago. The nests of this swallow are composed of a gelatinous substance, they have the form of a slightly oblong basin, their lower part is black, the interior is white, the gelatinous material is disposed in a reticulated manner. Between the filaments which form the reticulations are seen fragments of the *usnea lutescens*, a species of lichen which grows very abundantly upon trees. The swallows attach fragments of this lichen by means of the gelatinous substance to rocks, or to other nests already existing, for these nests are found in caverns, or below rocks grouped together in great numbers. Each generation which comes to inhabit the nests lines them with a new coating of mucus; the layer, however, which each pair of swallows deposits is very thin. The older a nest the richer it is in the gelatinous principle, and the freer from lichen and other impurities. A nest in the rough state weighs from three to four ounces. Before being used as food it must be freed from the lichen and other foreign bodies which surround it. The Chinese bring to this task their characteristic patience. A well-cleaned nest weighs about half an ounce; it is of a dull, white colour, is fragile, almost tasteless, and has no odour; in this state it is worth fifty francs (£2) a pound.

These nests enjoy the highest reputation on account of their nutritive and restorative properties; they are much sought after by mandarins and rich people, who employ them to restore the strength enfeebled by dissipation and luxury. Among the people they are employed in phthisis and in convalescence from diseases: the dose is an ounce and a half in a quart of water, reduced by boiling to half that volume. The soup so prepared has the consistency of a jelly; it is good to the taste, but has a peculiar aroma to which the palates of Europeans are not accustomed.

During many centuries the most absurd ideas were entertained regarding the nature of these nests, and the fact of their being used as food excited derision; but in the present day persons are found in France who, at great dinners, present birds'-nest soup to their guests. Before long, if debauchery and the taste for absinthe and other alcoholic liquors continue to make progress, our youth will be compelled to resort to this means of restoring their debilitated health.—*Bulletin Général de Thérapeutique*.

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- Berger,—De l'Asthme. Par C. J. Berger, D.M. Paris, 1863.
- Braithwaites,—Retrospect of Medicine, January to June. London, 1863.
- Duchesne-Duparc,—Du Fucus Vesiculosus. Par Prof. L. V. Duchesne-Duparc. Paris, 1863.
- Giraud,—The Moon's Influence upon Malarious Intermittent Fever. By Prof. Herb. Giraud. Bombay.
- Hogg,—Manual of Ophthalmoscopic Surgery. By J. Hogg, Surg., etc. Lond. 1863.
- Lee,—Baths of Germany, France, and Switzerland. By Edwin Lee, M.D. Fourth Edition. London, 1863.
- Lee,—State of the Medical Profession. By Edwin Lee, M.D. London, 1863.
- Lee,—Watering Places of England. By Edwin Lee, M.D. Fourth Edition. London, 1863.
- Paget and Turner,—Lectures on Surgical Pathology. By James Paget, F.R.S. Revised and Edited by William Turner, M.B. Lond. London, 1863.
- Ranking and Radcliffe's Half-yearly Abstract of the Medical Sciences: Jan.—June. London, 1863.
- Rayer,—Cours de Médecine Comparée. Par Prof. P. Rayer. Paris, 1863.

Part First.

ORIGINAL COMMUNICATIONS.

ARTICLE I.—*On the Cervix Uteri in Pregnancy.* By J. MATTHEWS DUNCAN, M.D., F.R.S.E., Lecturer on Midwifery, etc.

AN opportunity has recently occurred to me of examining the cervix uteri of a woman dying undelivered while far advanced in the eighth month of pregnancy. I propose here, after some historical matter, to give a brief account of this interesting case as evidence in support of the description of the anatomical changes taking place in this part during gestation which I have always taught, and of which I published an account in the Number of this Journal for March 1859.

In the journal above named I give sketches of the cervix at different periods, but none at the sixth month is exhibited. This omission I cannot even now supply from a fresh specimen, but I can refer with great satisfaction to the "*Icones Uteri Humani*" of Røederer, the renowned Göttingen professor, for a beautiful picture of a cervix taken from a woman six months advanced in pregnancy. In it the whole cervix is seen to retain its length of about an inch, and to be considerably hypertrophied. It certainly does not in this case, as yet at least, contribute by its development to the formation of the lower half of the cavity of the uterus. Røederer, however, held the erroneous doctrine, that after the fifth month the cervix is gradually expanded from above downwards, and contributes to the formation of the cavity of the pregnant uterus.¹ The fact that his doctrine is not verified by the dissection depicted, Røederer explains away by supposing that in this case the usual change is late in beginning. But it may be surely regarded as a sign of weakness or poverty of evidence, that an author should make an antagonistic observation the occasion for teaching a doctrine of which he has no illustrative dissections.

¹ In his admirable *Elements of Midwifery*, Røederer describes as follows :—
"Ita ad ulteriorem expansionem cervix præparatur, quæ præcipue versus sextum mensem notari meretur, quo quidem tempore eousque diduci incipit, ut cum communi uteri cavitæ tubi pars orificio superior confundatur, ex qua mutatione etiam brevius fit uteri orificium, labia sensim ad aperturam exteriorem diducuntur, figura conica vel cylindracea deletur." *Elementa Artis Obstetriciæ*. Göttingæ, 1759, p. 23.

Ræderer, indeed, says that autopsies confirm the results obtained by digital exploration. Now, we believe that the erroneous doctrine of Ræderer and of his followers down to the present day is founded on the deception of the obstetrician's finger, or rather on the erroneous anatomical interpretation by the obstetrician of the physical changes perceived by his finger. The finger finds softening, and the obstetrician, biassed by preconceived erroneous theory, declares it finds anatomical shortening, obliteration from above downwards, et cetera. The words of Ræderer are,—“Præter explorationem cadaverum sectiones seram cervicis mutationem manifestant.”¹ But this is mere assertion. Dissections show the reverse, so far as I know. Ræderer's work has two dissections which illustrate this point, and both are antagonistic to his quoted assertion. One of these dissections (Tab. VI. Fig. 6.) has already been mentioned. The other (Tab. VII. Fig. 1.) is still more destructive of his proposition. It is a picture of the internal surface of the cervix uteri of a woman who had been twelve hours in labour at or near the natural end of pregnancy. It shows just such mechanical changes in the cervix as might be expected to take place under the circumstances, and, so far as it goes, is adverse to the doctrine espoused by Ræderer, and supports that which I am now demonstrating.²

It would be very interesting to cross-question Ræderer regarding his assertion that dissections confirm the view which he thus states,—“Mirum itaque non est, primis mensibus explorantem digitum nihil mutationis ad cervicem notare, et quinto demum a conceptione mense tumentem sensim pone os uteri cervicem offendere, per lentos inde gradus cum integra uteri ellipsi confusam.” In this passage it is evident that the examining finger holds the chief place as the source of information. His own dissections, as we have seen, do not confirm the suggestions of his examining finger, and it will be very interesting to analyze the observations of other anatomists [Verheyen, de Graaf, Weitbrecht] whom we know he consulted on this point. Remarkable to relate, they all oppose his view; and one of them, Weitbrecht, as we shall see, does so more authoritatively than any author whose works I know.

In the anatomical work of Verheyen,³ Professor of Anatomy, etc., in the University of Louvain, which was published at Brussels in 1710, we find the following statements:—“In gravidis figuram sæpe mutat uterus; etenim prioribus mensibus vesicæ urinariæ assimilatur; deinde sensim magis magisque expansus ad figuram sphericam accedit; collo scilicet, quod uteri dilatationem haud sequi-

¹ *Icones*, p. 30.

² The conditions of the cervix during labour and shortly after delivery, especially its elongation from above downwards, do not naturally come to be considered in this paper. But they call for the attention of obstetricians with a view to the completion of the history of this interesting part.

³ *Corporis Humani Anatom.*, p. 126.

tur, non considerato." Again, speaking of the cavity of the body of the uterus:—"Cavitatem habet unicam, eamque in non gravidis, neque nuper enixis exiguam, et sæpe vix fabæ majusculæ capacem. In gravidis totum conceptum usque ad partum complectitur." Again, farther on:—"Cavitas cervicis oblonga est, et admodum coarctata, maxime pars inferior, quæ proprie dicitur osculum internum, atque in virginibus, nisi menses fluant, tantum stylum tenuiorem admittit. In gravidis, saltem aporpinquante partus tempore, magis hiat, si substantiam propriam consideres; sed interim larga mucî tenacis copia occluditur." And then he describes the inferior part of the cervix as it projects into the vagina. A perusal of these passages can leave no doubt that Verheyen's views of the anatomy of the cervix uteri did not accord with those of Rœderer, who speaks as if they did so. They coincide with the most modern descriptions.

The famous de Graaf does not address himself to the special point before us in a special way, but what he does say agrees with the statement of Verheyen. Weitbrecht,¹ indeed, suggests that de Graaf meant, in his statement to be quoted, to refer to the uterus only in the first half of pregnancy. I can see no reason for this view; but Weitbrecht had perhaps private or other means of knowing de Graaf's opinions. At the same time, just principles of criticism lead us, in the circumstances, to adopt de Graaf's statement without the comment of Weitbrecht. In the eighth chapter of his work on the Female Organs of Generation, he says:—"Collum enim (quod omnino notandum est) dilatationem uteri non insequitur, at pristinum fere statum usque retinet; idque non in hominibus solum, verum in vaccis, ovibus, aliisque animantibus indies evenire conspicimus."²

Unlike de Graaf, Weitbrecht (1750) has entered fully and particularly on the condition of the cervix uteri in pregnancy in his memoir, "*De Utero Muliebri*," communicated to the Imperial Academy of Sciences of St Petersburg. His descriptions are full and careful, and leave, in respect to the subject now under discussion, nothing to be desired. And it must be distinctly stated, to the great honour of Weitbrecht, that it is to him chiefly that the credit of stating and illustrating by a dissection the true doctrine of the development of the cervix in pregnancy is due. Henceforth it will be a grave error to consider the true account as modern and as a discovery of Stoltz, re-discovered or confirmed by more recent authors. Rœderer and his followers down to this day have to bear the responsibility not merely of taking the feel-

¹ "Primo quidem abunde confirmatur assertum Graafii qui stabilivit 'Collum non insequi dilatationem uteri gravidæ, sed pristinum fere statum retinere,' id quod de mediis gestationis mensibus intellectum vult." *De Utero Muliebri Observationes Anatomice. Auctore Josia Weitbrecht. Novi Comment. Acad. Sc. Imp. Petropolitane. Tom. I. p. 348.*

² *Opera Omnia Regneri de Graaf. Lugd. Batav., 1677, p. 233.*

ings acquired by the examining finger as anatomical facts, but of doing this in spite of anatomical facts and descriptions of whose existence they were aware. No doubt Rœderer asserts that dissections prove or confirm his view, but he does not state where they are recorded. I believe they do not exist, and that he and his followers commit, though with less excuse, the scientific crime of Galen, who describes the human uterus which he never saw, and of course encumbers his pages with gross errors. Obstetrical students should peruse the whole essay of Weitbrecht. I can only quote short passages in proof of what I have just said. The chief subject of it is the dissection of the uterus of a woman seven months pregnant.

"Cervix, sive collum uteri non exigua hujus organi portio est. Sed in statu prægnante non in eadem temporis proportionem mutationibus et extensioni obnoxiam esse ac fundum, observationes nostræ luculenter docuerunt. In virgine et vetulis dimidium propemodum longitudinem totius uteri, quæ ut notum est, vix duos pollices æquat, compleverat. In prægnante perparum ab hac forma et quantitate recesserat, nisi quod ante dissectionem considerata habitum paullo turgidiorem præ se ferret et duritie fundum superaret. Contra uteri cavi longitudine erat ultra octo pollices. Hæc tota specus ex tam spaciola amplitudine coarctabatur inferius in foraminulum adeo exiguum, ut vix pisum admitteret, cœu osculum urethræ internum ex contractis vesicæ urinariæ tunicis generatur. Hoc foraminulum vocare placet osculum cervicis internum, ut distinguatur ab altero vulgo cognito, os uteri dicto, transversa rima in vaginam hians, quod osculum cervicis externum appellabimus."

"Postquam cervicem, continuatâ uteri sectione longitudinali, aperui: tota distantia ab uno osculo ad alterum pollicem circiter æquaverat."

"Quæ hætenus de uteri cervice annotavimus, ad multas veritates viam nobis pandunt. Primo quidem abunde confirmatur assertum Graafii qui stabilivit 'collum non insequi dilatationem uteri gravidæ sed pristinum fere statum retinere' id quod de mediis gestationis mensibus intellectum vult. Cum natura rei igitur plane non congruit idea illorum, qui uteri prægnantis cervicem sibi fingunt cœu unicum osculum, annulo quasi membranæo oclusum, qui paulatim mollior fiat et amplior, donec ita liet, ut fortum transmittere possit, qualem æ.g. Deventer pingit. Hoc enim non nisi de ultimis diebus graviditatis, quando partus appropinquat et imminet, intelligi debet; tum enim orificium paulatim distenditur et annuli simplicis formam nanciscitur, per quem vix unum alteramve digitum trajicere liceret. Totalis autem dilatatio tum demum, uti obstetrocando experimur, locum habet, quando jam parturiens aliquos dolorum prodromos persentiscere incipit, aquæ rumpuntur, et caput fœtus ad cervicis orificium adigitur."

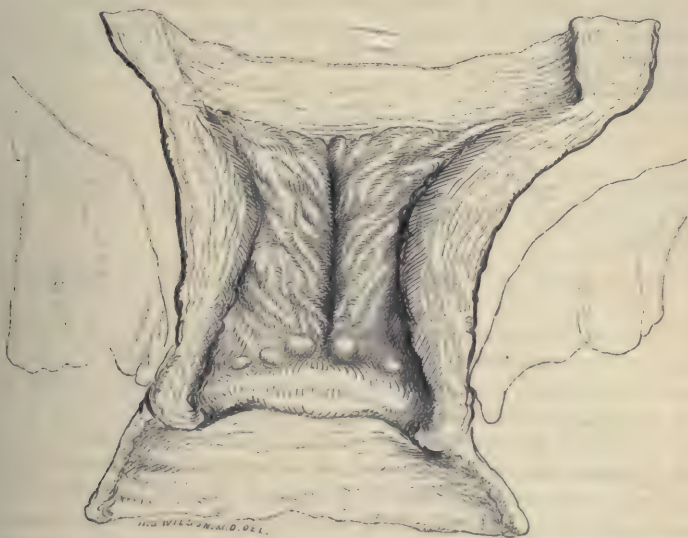
To this account of the behaviour of the cervix uteri in pregnancy there is added an excellent minute engraving of its condition in the patient whose dissection after seven months of pregnancy gave rise to the memoir. It resembles greatly the picture of the same part already referred to as occurring in the *Icones* of Rœderer, and also the following wood-cut of the cervix of a woman who died after eight months of pregnancy.

There was recently admitted into the Royal Infirmary of Edinburgh a woman labouring under typhus fever. She was placed under the care of Dr Warburton Begbie, who formed an unfavour-

able prognosis on account of the complication of the fever not only with pregnancy but also with insufficiency of the aortic valves. She died on the thirteenth day of the fever. Shortly after death the Cæsarean operation was performed, and a living child was born, which survived its mother about five hours. The statements of the patient and the appearance of the child showed that pregnancy was far advanced in the eighth month.

On the post-mortem examination, attention was directed to the condition of contraction of the uterus around the placenta, which was in part separated from its attachments, and expelled through the incision in the anterior uterine wall. The cervix uteri was examined by the finger in situ, but nothing could be thus decidedly made out. So glabrous was its surface and so soft and unresisting its substance that, had no further investigation taken place, one might well have concluded that it was obliterated and reduced to a mere os, and that Rœderer's erroneous descriptions were correct.

The entire uterus and neighbouring viscera were carefully removed and examined. The cervix was opened by a longitudinal incision in continuation of that made in the Cæsarean section. The appearances discovered are represented in the accompanying wood-



cut. The appearances which the part presents, as now preserved in suspension in a jar, very greatly resemble the picture in Rœderer's *Icones* of the same dissection of a woman in the sixth month of pregnancy. The cervix measured about an inch in length. It easily admitted the finger. Its tissue was greatly hypertrophied

and completely softened in every part. The rugæ, especially the anterior and posterior columnæ, were greatly hypertrophied and prominent. The lower margin of the cavity of the cervix could be identified by the presence of a row of Nabothian follicles; the upper margin by the abrupt termination of the arbor vitæ and the expansion into the smooth-walled cavity of the uterus.

Before concluding, I wish to mention two anatomical details which are observed in the dissection of gravid uteri at all periods of pregnancy, and which appear to me to afford strong evidence of the correctness of the views enunciated by Weitbrecht, and which I have always taught. These points relate to the situation at which the uterine artery approaches the cervix, and to the situation of the broad ligaments upon the side of the womb. The condition of the womb in respect of both these particulars remains during pregnancy nearly the same as in the unimpregnated state. Were the neck of the womb developed, as most obstetric writers assert, then it would naturally be expected or would necessarily follow that, with the growth and expansion of the cervix into the lower part of the great uterine cavity, the uterine arteries and the lower parts of the broad ligaments would be elevated, accompanying the growing adjacent parts, and that the artery would approach some part of the expanded uterus. The fact that such changes are not observed lends an anatomical argument, were any such necessary, in favour of the views which we have laboured to establish by anatomical facts.

ARTICLE II. — *On Vascular Bronchocele and Exophthalmos.*

By J. WARBURTON BEGBIE, M.D., Physician to the Royal Infirmary.

(Read to the Medico-Chirurgical Society of Edinburgh, 1st July 1863.)

THAT an affection characterized by so remarkable a tetrad of symptoms as palpitation of the heart (often violent in degree), notably increased pulsation of arteries, prominence of the eyes with peculiar startled expression, and enlargement of the thyroid gland, should, when once accurately observed and definitely described, have attracted a large share of professional attention, is by no means surprising. This odd form of disease,¹ as a recent distinguished writer has called it, is certainly not new,—it has only remained for a lengthened period unobserved or unappreciated; its history in this respect not differing from that of several other ailments which recent research has alone brought to light; as, for example, Bright's disease of the kidneys, leukæmia, and the

¹ "Cette maladie si bizarre, pardonnez-moi cette expression," etc. Trouseau, in the report to the French Academy.—Bulletin de l'Académie Impériale de Médecine, tome xxvii. p. 996.

rheumatic inflammation of the cardiac structures. That the association of two, and even of all the symptoms referred to, had, moreover, been occasionally noticed, long before any proper conception of their importance had been formed, is abundantly clear from the cases recorded by Flajani,¹ by Dr Caleb Parry,² and certain anonymous writers, particularly in the *Medico-Chirurgical Journal and Review*.³ By Dr Graves, the cardiac affection and enlargement of the thyroid gland were accurately noted and described in 1835; and, subsequently, Dr Stokes particularly alluded to the enlargement of the eyes in relation to the other features. In 1839 the disease was carefully observed by Dr Begbie; and, in the course of the succeeding ten years, again and again recognised,—till, in the form of a memoir, his observations, comprehending a theory as to its origin, the proof of its amenability to treatment, and important suggestions as to the means to be employed, were brought before this Society in 1849.⁴ Meantime, both in this country and on the Continent, the disease had attracted the attention of physicians,—earliest in Germany, that of Basedow, who, under the appellation of “cachexia exophthalmica,” described it.⁵ It is for Basedow that Hirsch and others have claimed a priority of observation, and, conformably to a practice which finds favour with many, have sought to identify his name with the disease; Basedow’s disease (*Maladie de Basedow*) is the title under which these writers have presented their observations and recorded instances of the malady in question. Trousseau, on the other hand, whose high admiration for the character and writings of the distinguished and lamented physician of Dublin, Dr Graves, is well known, and can only be most agreeable to us, has determined that the disease shall be recognised as Graves’s disease (*Maladie de Graves*); and thus he has styled it in the recently published volume of the *Clinique Médicale de l’Hôtel Dieu de Paris*. It is, however, only fair to Dr Stokes to observe again, that the first distinct reference by the Dublin physicians to the enlargement of the eyeballs, in connexion with palpitation of the heart and enlargement of the thyroid gland, was made by him when communicating the particulars of a case to Dr Graves.

Of the actual existence of such a disease as that described by Graves, Stokes, Basedow, Begbie, Trousseau, there can be no question; whoever has had the opportunity of seeing and carefully studying a single well-marked instance of the phenomena referred to, must admit the entity of the disorder whose characteristic features they are. The case brought before the Imperial Academy of Medicine at Paris in April 1860, by M. Hiffelsheim, and that

¹ Collezione d'Osservazioni e Riflessioni di Chirurgia, tome iii.

² Unpublished writings of the late Dr Caleb H. Parry, vol. ii.

³ For February 1816.

⁴ Monthly Journal of Medical Science, 1849.

⁵ Casper’s Wochenschrift, 1840.

produced by the late M. Aran, when engaging the attention of the Academy with the same subject in the December following, are admirable illustrations of the disease, and wholly satisfactory as proofs of its separate and distinct nature. In the very important discussion in the Imperial Academy which succeeded the reading of these cases by MM. Hiffelsheim and Aran, only one speaker attempted to throw discredit on the observations,—to challenge the correctness of the view which assigned to the assemblage of symptoms under discussion the dignity of a specific morbid state or disease. "There does not exist," concluded M. Piorry, on 22d July 1862, "a morbid unity called diathesis, cachexia, or neurosis, constituted by a triad, or a tetrad, or a pentad, or a polyad of symptoms, and which merits the name of exophthalmic goitre." I am not aware of any other expressed opinion in accordance with that of M. Piorry, while a subsequent speaker in the same discussion, M. Bouillaud—not less than M. Piorry himself—has thrown some fresh light on the real occasion of the extraordinary statement just quoted. M. Bouillaud's parole, on the 5th of August, commences as follows:—"Gentlemen, before proceeding to the subject of discussion, I desire to pay a just tribute of praise to the two eminent colleagues (MM. Trousseau and Piorry) who, during the two former sittings of the Academy, have occupied the tribune. Happy the Academy, if, renouncing certain notorious antecedents, these two orators had in some sort extended the fraternal hand, and had afforded us the edifying and agreeable spectacle of a reconciliation which science would not have failed to applaud. The hour for the consummation of so desirable an event is not yet arrived." But, not only is there a disease mainly characterized by the features adverted to, the malady in question is very far from being uncommon in its occurrence. From the period when Dr Graves wrote, there is scarcely a country in Europe in which the disease has not been met with and described; while, in our own country, in France, Germany, and other parts of the Continent, it has formed the subject of many interesting, and some extended, observations. In America, likewise, it has not been overlooked. I am satisfied that in this city the disease is of frequent occurrence, and, in hospital practice, have often encountered it. No session has passed since my appointment as physician to the Infirmary during which the opportunity has not been afforded me of directing the attention of a clinical class to the remarkable phenomena the disease presents; while, as a general rule, my experience has been that of the last session, several cases having come under our notice. Up to the time when Dr Begbie wrote, the instances of this disorder which had been recorded were merely isolated examples,—or were, at all events, related as illustrations of what was properly regarded as a remarkable combination of symptoms, without any attempt being made to explain their occurrence or production. Thus, Parry, to whom undoubtedly credit belongs for having early and

independently noticed the association of two of the symptoms, observes:—"There is one malady which I have, in five cases, seen coincident with what appeared to be enlargement of the heart, and which, so far as I know, has not been noticed in that connexion by medical writers. The malady to which I allude is enlargement of the thyroid gland." It is perhaps scarcely correct to affirm that Dr Parry attempted no explanation of the coincidence he had been shrewd enough to observe; but, as regards the causation of the enlarged thyroid, all he remarked was as follows:—"One can scarcely avoid suspecting that the thyroid gland, of which no use whatever has hitherto been hinted at by physiologists, is intended, in part, to serve as a diverticulum in order to avert from the brain a part of the blood, which, urged with too great force by various causes, might disorder or destroy the functions of that important organ." And so also, in a way equally accidental, Dr Graves wrote,—"I have lately seen three cases of violent and long-continued palpitation in females, in each of which the same peculiarity presented itself,—namely, enlargement of the thyroid gland; the size of the gland, at all times considerably greater than natural, was subject to remarkable variations in every one of these patients."¹ Equally true is it that no explanation of the phenomena was, in the first instance, offered by Pauli or Basedow in Germany, or by Dr Macdonell or Sir Henry Marsh in Ireland, by whom, meantime, interesting cases had been observed, and, in considerable detail, recorded.

When Dr Begbie, in 1849, brought his observations on enlargement of the thyroid gland and eyeballs before this Society, he regarded these appearances as the consequences of anæmia, and this substantially is the view he still entertains.² A similar opinion has since that time been expressed, specially respecting one of these symptoms,—namely, the prominence of the eyes,—by several distinguished oculists. Dr Mackenzie of Glasgow, for example, styles this condition "anæmic exophthalmia." Mr White Cooper and Dr Robert Taylor have respectively described it as "protrusion of the eyes in connexion with anæmia, palpitation, and goitre," and "anæmic protrusion of the eyeballs." The anæmic theory as to the origin of the malady has, therefore, found much favour with ophthalmogists; it has likewise been adopted by physicians who have had the opportunity of devoting attention to the consideration of the whole phenomena. Among such may be mentioned the late Dr Bellingham of Dublin and Dr Isaac E. Taylor of New York. The former able writer thus expressed himself:—"The affection may be regarded as one of the rarer results of anæmia, as first pointed out by Dr Begbie; indeed, the subjects of it present the ordinary characters of anæmia; they are generally pale and chlorotic looking, and often labour under amenorrhœa,

¹ Clinical Lectures on the Practice of Medicine, vol. i. page 193.

² Contributions to Practical Medicine, page 176.

leucorrhœa, and menorrhagia; they suffer from indigestion, impaired appetite, disturbed sleep, short cough, coldness of the extremities, headache, ringing in the ears, and palpitation; while various nervous or hysterical symptoms, as intercostal neuralgia, or spinal irritation, are occasionally present."¹ But, while all observers of this disease have recognised its connexion with anæmia, there are several—and among these some of the best of recent writers—who have hesitated to assign to a simple blood impoverishment the important rôle which, in the view of the other writers named, it is considered to play. Anæmia is confessedly present in a large proportion of cases; but, inasmuch as that condition did not precede the development of the characteristic features in some instances, while in others it only became manifest after these had been in existence for a considerable period, it cannot, they argue, be regarded as an adequate explanation of their production. Unable to recognise the existence of anæmia in connexion with the palpitation, the enlargement of the thyroid gland, and remarkable appearance of the eyes, some observers, more particularly on the Continent, having noticed the association of these symptoms with a condition of the general system more or less depraved, have described the disease under the by no means definite or distinctive appellation of a cachexia. Thus, Basedow in Germany, to whom reference has already been made, uses the expression *Cachexia exophthalmica* (*Glotzaugencachexia*, literally, large staring eye, or goggle-eyed cachexia); Withusen, that of *Cachexia exophthalmica*; and Hervieux, with Fischer and other French writers, terms precisely similar,—as, *Cachexie exophthalmique*, *L'exophthalmos cachectique*. In the former of the two valuable papers on the subject recently read by Dr Laycock to this Society, it is implied that certain German writers have identified the so-called exophthalmic with the strumous cachexia.² In the descriptions of Romberg and Henoch, whose contribution bears the title, "*Herzkrankheit Struma und Exophthalmos*,"³ and in the observations of Schoch, entitled, "*De Exophthalmo ac Struma cum Cordis Affectione*,"⁴ I have, however, been unable to find any warrant for this assumption; they have merely employed the word "*struma*," as it is often used by German writers, in a sense synonymous with bronchocele, and having no reference to that bad habit of body which English and other writers designate as the strumous. I have said that the term cachexia is by no means a definite one; the meaning attached to it by different writers varies considerably; as we meet with it in medical literature, it is not in all circumstances possible to ascribe a uniform, exact, or clear signification to it. While, by certain physicians, the word cachexia, and, perhaps still more, cachectic, is used to denote

¹ A Treatise on Diseases of the Heart, page 532.

² Edinburgh Medical Journal, February 1863.

³ Klinische Wahrnehmungen und Beobachtungen, 1853.

⁴ Dissertatio Inauguralis. Berlin, 1854.

the existence of some profound, indeterminate, and irremediable vice of the organism, by others the term is not understood in so formidable a light. Trousseau, who has evidently the most serious view of a cachexia, sees none in the "maladie de Graves;" and, again, by Basedow and others, who have employed this word in their descriptions of the disease under consideration, it has very evidently been used as precisely synonymous with chlorosis, anæmia, or hydræmia. This is very clearly shown in the able observations of M. Beau during the discussion in the French Imperial Academy of Medicine.¹ Lieutaud, he reminds the Academy, was the first to employ the term anæmia, though long antecedent to his time the characteristic features of anæmia had been with accuracy observed,—to wit, pallor, swelling, feebleness, and flaccidity, which most readily arrest attention,—and to the same assemblage of symptoms the word cachexia has also been applied. M. Beau further quotes from Felix Plater a passage, in which, under the name of cachexia, precisely the symptoms of anæmia, as now generally understood are included,—to use M. Beau's own language, "the ordinary symptoms of our modern anæmia." Every feature of anæmia is indeed noticed in this description of cachexia by Plater, if we except the important auscultatory phenomena, the discovery of which was reserved for Laënnec and his successors. "Cachexia," he says, "is a disease accompanied by discoloration of the skin, in which the florid hue is lost, and, for the most part, the proper appearance of the body is changed; hence the term cachexia. In this disease the skin becomes white, or grows pale, or acquires a livid hue, or turns to a leaden aspect, while the surface of the body acquires a swollen appearance. The affection is generally accompanied by dyspnœa, which chiefly attacks the sufferers in walking, or ascending heights, with palpitations of the arteries in the neck, and of the heart, and with weakness of the limbs. While (Plater concludes) all may suffer from this disease, it is peculiarly apt to affect young women." The cachexia, then, which is thus defined, or a condition nearly identical with it, is evidently the state or appearance of body with which the more remarkable features of the disease under consideration are held by some writers to be associated. And this cachexia is surely nothing more or less than an anæmia. In such a depraved condition of body as either of these terms may be held to express there is noticeable—pallor of the tissues, muscular feebleness, softness or flaccidity of flesh, and not unfrequently œdema. Associated with these well-marked features there exist, usually in a distinct form, the peculiar auscultatory phenomena connected with the heart and arteries, and with the veins, chiefly those in the neck, which have been generally supposed to result from an impoverished condition of the blood, as well as palpitation of the heart and pulsation of the arteries, and many other less important, because not constant, symptoms. Dr Laycock has objected to the value usually

¹ Bulletin de l'Académie Impériale de Médecine, tome xxvii. page 1101.

attached to the hæmic murmurs as evidences of anæmia; nevertheless, I am thoroughly persuaded of their importance. In instances of marked anæmia, I have never failed to detect the systolic soft blowing murmur at the base of the heart, the arterial souffle in the arteries of the neck, and the humming-top sound—bruit de diable—in the jugular veins particularly, but not unfrequently in the femoral and brachial. For their production, in anything like perfection, I believe two circumstances to be requisite; firstly, a marked excess of water over the corpuscular elements of the blood, and, secondly, a considerably exalted action of the heart. When these conditions have co-existed, I have never failed to identify the cardiac and vascular hæmic murmurs. I have found all of these, though never well marked, in cases which presented little if any of the general features of the anæmia or cachexia already adverted to; and I have failed to distinguish them in some instances of sufficiently anæmic or cachectic individuals. In the former case there has probably been that excess of water over blood-corpuscles which is, I believe, required for their production, though the external characters of anæmia were not pronounced, and the absence of the sounds in the latter case was probably due to the feeble action of the heart. In ordinary examples of splenic leukæmia, I should not expect, and have not found, hæmic murmurs, for the corpuscular element of the blood in them is far from being deficient, and I cannot agree with Dr Laycock in regarding their usual absence in such cases as militating against the valuable information their presence in other circumstances affords. In chronic Bright's disease, if hydræmia has at the same time existed, and the heart's action been moderately strong, I have never failed to detect them. In the disease under consideration, I have always found these murmurs. The loudest hæmic murmur at the base of the heart, as well as the most distinct venous bruit in the neck I ever heard, were in a well-marked example of associated exophthalmos and bronchocele.¹ It must here be observed, that, by those physicians who have in the strongest manner upheld the blood origin of the cardiac palpitation, and arterial pulsations, the enlargement of the thyroid gland, and prominence of the eyes, the coincidence of remarkable nervous symptoms with these phenomena has not been overlooked. But

¹ The microscope affords important information in anæmia. I am satisfied that there may be the pallid appearance of countenance, and the other general symptoms of this condition, in cases in which the auscultatory phenomena adverted to have little or no existence. In such cases the microscope detects no deficiency of the red corpuscles; but they have an altered appearance, are much less coloured, are serrated in their borders, and rarely form rouleaux. This condition, as well as that of a true hydræmia, may exist in the advanced stages of renal disease. I have now under my care in the Infirmary, a sufferer from chronic Bright's disease, whose look is so sufficiently cachectic or anæmic as in connexion with infra-orbital œdema, to suggest at first sight the malady under which he labours. Auscultatory phenomena exist, but in feeble measure. His blood is not watery, yet it is certainly impoverished; it is deficient in colouring matter, and the corpuscles are unlike those of health.

while evidently impressed with a sense of their importance, their nature and even their occurrence being far from uniform, they have been viewed by such either as accidental or, as at most, accessory symptoms; and, even by those who have specially noticed them, have been ascribed, like the other phenomena of the disease, to the impoverished condition of the blood. More recently, several experienced writers and observers, in explaining the causation of the various symptoms, have attributed these to an affection of the nervous system, and have regarded the anæmic or cachectic appearance presented by the sufferers, as resulting from the long-continued nervous disorder. Dr Stokes, in his work on Diseases of the Heart and Aorta, has styled the disease a special form of cardiac neurosis. "There are," he says, "strong reasons for holding that the disease is originally a neurosis of the heart, and, perhaps, also of the cervical vessels themselves;"¹ and Withusen, the able Danish writer already referred to, has remarked, "We must, therefore, adhere to the opinion that we have, in such cases, to deal with a nervous affection of the heart, which may indeed give rise to organic cardiac disease, but does not necessarily do so; to attempt to demonstrate the source of the affection would, as we cannot find it in anæmia, with our present materials, be a fruitless labour, and would lead us far into the region of hypothesis."² It is now four years since Koeben expressed the opinion that a lesion of the sympathetic best explained the entire phenomena; and in 1860, the late M. Aran, having diligently studied the disease, and having brought the subject under the attention of the Imperial Academy of Medicine, concluded that, in all probability, the primary seat of the disease was in a lesion of the grand sympathetic. M. Trousseau, who has of late had considerable clinical experience of exophthalmic bronchocele, and whose views on the subject may be found at length in the discussion before the Imperial Academy, in which, as "rapporteur," he took a very prominent part, as well as in the second volume of the Clinique Médicale de l'Hôtel-Dieu de Paris, rejects the anæmic theory as to its causation, and regards the anæmia as secondary to the cardiac palpitation, the arterial pulsations, and the phenomena connected both with the eye and thyroid gland. "Anæmia," he says, "is an epiphenomenon; it is secondary, sometimes tardy in its development. The morbid cause acts primarily on the heart, and it is not till the lapse of a certain time, more or less considerable, that the blood is modified in the constitution of its elements. The woman in bed 34 of the ward St Bernard, presents at this time the features of anæmia; these features were not, however, in existence when she came under our care, although the disease had then continued for nine months. A neurosis of the grand sympathetic had preceded the anæmia." Again, the same

¹ Page 293.

² On the Cachexia Exophthalmica of Authors. Translated by Dr W. D. Moore, Dublin Hospital Gazette, July 13, 1859.

distinguished physician observes, "The disease is, in my opinion, a neurosis with local congestions, having its proximate cause in a modification of the vaso-motor apparatus."¹

There may then be said to exist, at the present time, two theories respecting the origin of the singular and interesting ailment we are considering. The one, that it depends upon anæmia, a blood impoverishment; the other, that it results directly from a disorder of the nervous system, is a neurosis depending on lesion of the vaso-motor apparatus. I am strongly inclined to think that the true explanation of the pathology of the disease rests somewhere between these two propositions. Neither the state of the blood, nor the condition of the nervous system, as the point of departure, "the *primum mobile*" is to be overlooked. It may be conceded that all the symptoms which go to constitute anæmia may result from disorder of the nervous system, and by such disorder will assuredly be aggravated; still, if it can be found that the features of the former malady were in existence before there was any evidence whatever of nervous disturbance, we shall feel entitled to consider that the blood alteration was first in the order of events. That in most, if not in all, of the cases of associated exophthalmos and bronchocele this holds true, is, I think, probable. No doubt, this opinion will be controverted by some physicians, whose statements are entitled to respectful consideration, but having already pointed out that the anæmia of the writers who adopt the humoral pathology of the disease is in all probability identical with the cachexia of those who have rejected it, I feel there is some ground, even in their own statements, for the opinion just expressed. When, in addition, a careful study and analysis of the numerous cases recorded by different writers is made, there are undoubtedly afforded very strong reasons in favour of anæmia operating as their cause. The following particulars under this view of the subject must not be lost sight of. *First*, That the sufferers from the disease have, in a large proportion of cases, presented adequate causes for blood impoverishment. These causes have varied in different cases—the more frequent in their occurrence have been uterine hæmorrhage, hæmorrhoidal flux, long-continued leucorrhœa, amenorrhœa, prolonged lactation, lentergy, and diarrhœa. While so suffering, the occurrence of the enlargement of the thyroid gland, or the prominence of the eyes, or both, have not unfrequently been preceded by some cause acting injuriously on the nervous system, particularly such as excited the emotions or passions,—grief, fear, fright. *Second*, That the sufferers have themselves, in numerous instances, presented the characteristic features of anæmia, pallor of countenance, feebleness of limbs, and flaccidity of tissues, tendency to œdema, palpitation of the heart, and the peculiar auscultatory phenomena connected with the heart and bloodvessels, to which reference has already been made. And it is while these symptoms in succession

¹ Clinique Médicale de l'Hôtel-Dieu de Paris, tome ii. page 645.

to some adequate cause of blood impoverishment have been in existence that, either spontaneously, or apparently resulting from some injurious operation on the nervous system, the bronchocele and proptosis have appeared. *Third*, That the remedial means which have hitherto been directed to the relief of these symptoms, with most decided effect, are just those which, in the treatment of anæmia, are confessedly of the greatest service; and *Fourth*, That the structural changes to which the central organ of the circulation is subject are of the like kind with those which result from its long-continued functional derangement in connexion with anæmia when assuming its more ordinary characters. There are then, I repeat, very cogent reasons afforded by clinical observation for associating blood impoverishment with exophthalmos and vascular bronchocele, and for assuming that they stand to each other in the relation of cause and effect. A diligent study of the phenomena of the disease must, however, satisfy all, that the anæmic theory, as thus expounded, stops short of explaining all the peculiar features of such cases, even when the anæmia is best marked, and, still more, those instances in which, while a cachexia is certainly present, there is a hesitation, an accountable disinclination, or even an impossibility, in the way of pronouncing it anæmia, as that condition is ordinarily understood.

This leads me to offer some remarks on the special and peculiar conditions which are met with, the cardiac palpitation, and arterial pulsations, the bronchocele and prominence of the eyes. That these are, one and all, to be regarded as symptoms of the same disorder, does not, I think, admit of any doubt; and, further, I believe that the essence of the disease may be in existence without the association of all these symptoms. With the cardiac palpitation and arterial pulsations, and without the bronchocele or prominence of the eyes, it occurs; and, while the latter symptom is absent, the enlarged thyroid may, in some instances, be found. Clearly, and this view of the subject has a very important bearing on treatment, the cardiac and general vascular disturbance precede the thyroidal and ophthalmic symptoms, and, when properly recognised, by suggesting the employment of appropriate means may be said to prevent the appearance of the latter. The palpitation of the heart is, for the most part, the symptom which chiefly attracts the attention of the patient, and leads her to seek professional advice.¹ It is generally vehement, often it is tumultuous, always it is rapid, being precisely of the same nature, though usually more violent, as the palpitation with which we are familiar in ordinary instances of anæmia and chlorosis. That the excited action of the heart is, in the early stage of the

¹ As is well known, the affection under consideration occurs more frequently in women than men; still, the observations of Dr Macdonell, Dr Begbie, Romberg, Henoeh, and others, have shown that among the latter it can assume its most typical expression.

disease, altogether independent of organic change admits of no doubt.¹ Again, the accounts of post-mortem appearances, in the fatal cases, which have been investigated by Sir Henry Marsh, Basedow, and Dr Begbie, satisfactorily prove that those changes which result from long-continued functional derangement of the heart are to be met with—chiefly permanent dilatation of its chambers, with more or less of hypertrophy. The cardiac disturbance being admitted to be among the earliest of the morbid phenomena in this disease, the question presents itself,—upon what does this disturbance depend? That it is essentially neurotic in its nature may be admitted; such disturbed action of the heart as we thus find is probably best explained by interference with the cardiac plexus of nerves. That important network is formed by small branches from the pneumogastric, and by branches from the three cervical ganglia of the sympathetic; from the cardiac plexus styled great, and in which at least two ganglia are to be recognised, nerves proceed in intimate relation with the coronary arteries to the organ; into its substance they are to be traced, and they are there distinguished by possessing in their course minute ganglia, or nervous centres, which have not unreasonably been supposed to regulate the rhythmical movements of the heart. I conceive that the aberration of cardiac function, which interference with these ganglia best explains, may as readily and probably, on the whole, with greater probability of truth, be accounted for by their originally impaired nutrition, through an impoverished blood, than by the direct operation on them, or on more distant nervous centres with which they are intimately connected, of an injurious cause which cannot with any accuracy be defined,—chiefly spoken of as emotional. Healthy blood is the proper stimulus of the heart as well as of the vessels. Impure blood, unoxygenated, returning to the left side of the heart paralyzes the organ, and venous blood, too, stagnates in the pulmonary capillaries. This, indeed, is the primary phenomenon in asphyxia; the depressing influence exerted by such blood on the nervous centres succeeds its retardation in the lungs. A less deteriorated blood tells on the cardiac nerves, and through them the heart is excited to unrhythmical movements.

If now we turn to the consideration of the remarkable condition of the vascular system, I believe we shall there find, likewise, satisfac-

¹ I consider it quite unnecessary to advance any proof of the correctness of this statement. By some writers the heart affection has, indeed, been described as organic, and the sufferers from exophthalmos and bronchocele have likewise been regarded as the subjects of cardiac hypertrophy. Trousseau has specially addressed himself to the refutation of this error. But both Trousseau and Beau, the latter more especially, have admitted the existence in such cases of a temporary hypertrophy, "*hypertrophie passagere*," or rather a general dilatation of the whole cardiac chambers, such as the researches of Larcher, Duerest, and Blot, have shown to occur during pregnancy. Muscular relaxation with flaccidity is a characteristic feature of anæmia—the involuntary muscular structure of the heart is just as likely to suffer as the voluntary muscles from the contact of impoverished blood.

tory evidence of its hæmic as well as neurotic origin. The palpitation of the heart is certainly not more characteristic than the violent pulsations of the arteries; it is chiefly in the neck that these are visible; the carotids beat tumultuously, and yield a very loud "bruit de souffle." When the hand is applied over the neck, or, still more, when both sides of the neck are held in the widely opened hand, the vibratory thrill or purring tremor from the carotids is remarkable. Of the cervical pulsations the patient complains; they are often most distressing to her, and are always greatly increased by muscular exertion. With them are associated a sense of fulness in the chest and head, throbbing in the temples, beating in the ears, vertigo, and dyspnœa. Severe dyspnœa, paroxysmal in character, I have only seen in one case, in which the bronchocele was of very large size, and must have in all probability interfered with the recurrent branch of the pneumogastric. Unquestionably all these distressing symptoms are likewise aggravated by emotional causes. Marked as the pulsation in the vessels of the neck, superficial as well as deep, is, it is not in these arteries alone that the movement is visible; if the larger superficial vessels at a greater distance from the heart are examined in characteristic examples of the malady, it will be found that they too are similarly affected—the brachial, radial, and ulnar of the superior, and the femoral, popliteal, and tibial arteries in the lower extremities. I have, moreover, known a patient to complain more of the *beating* in the belly than of either the cardiac or cervical pulsations, and have always found the abdominal aorta affected just as the other arteries of the body; distressing pulsation in the abdominal aorta is, indeed, of common occurrence in ordinary examples of anæmia and chlorosis. M. Beau has directed attention to the circumstance that, by writers generally on this disease, the radial pulse has been described as small, and states that he is unable to adopt a similar opinion.¹ The apparent smallness of the radial pulse is, however, due to the calibre of the artery; and, agreeing as I do with M. Beau in this observation, I believe that a juster view of the arterial pulsations will be formed, if the whole superficial arterial system be examined. Something, indeed, may be ascribed to the ready way in which an increased pulsation in the superficial vessels of the head and neck is recognised. Hippocrates, who was probably unacquainted with the doctrine of the pulse, nevertheless had noticed pulsation in the temporal arteries, *Σφυγμός εν τοις κρόταφοις*. I have further, in attending to this particular, determined that the synchronism between the heart's contraction and the distant pulses is more exact than in ordinary circumstances, and

¹ Dr Stokes has said on this point, "In most instances, we observe a want of proportion between the force of the pulsations of the arteries of the neck and those in other parts of the system. The carotid and thyroid arteries may pulsate with vehemence, so as to give the idea that all the vessels of the neck are enlarged and in a state of morbid activity, yet the radial pulse be small and weak, and only rapid or irregular according to the state of the heart's action." —*Diseases of Heart and Aorta*, page 281.

in this phenomenon, as well as in the exaggerated vascular motion, have recognised the increased energy of the heart's action excited to overcome the loss of assistance afforded by the rhythmical contraction of the arteries. In anæmia and chlorosis, increased pulsations of arteries, particularly the arteries of the neck, are not absent, and have long attracted attention. Felix Plater, whose description of cachexia has already been quoted, after speaking of various signs, remarks, "*Accidente simul pulsatione arteriarum circum jugulum;*" and Rondelet observes, "*Noscitur pallidus color virginum, ex arteriarum colli pulsatione, et ex cordis palpitacionibus.*" These writers are cited by M. Beau; and both he and M. Bouillaud, in their paroles before the Imperial Academy, have expressed the common experience of physicians when they said, that every day chlorotic girls ask our advice for palpitation of the heart and pulsations in the arteries, who believe themselves to be affected with some serious disease of the heart, and have already lost hope of recovery. As we have found the cardiac derangement to depend on a hæmic as well as neurotic cause, so I believe in the same way may the pulsations of the arteries be best explained. Allusion has been made to the supply of nerves to the heart; it is by minute branches from the same system that the bloodvessels throughout their most distant ramifications are embraced. The muscular apparatus, with its contractile property, chiefly resident in the small bloodvessels governing their diameter, receives no other nervous supply than from the sympathetic. Careful experiments have demonstrated the influence of the organic nervous system upon the calibre of bloodvessels both large and small. Those of Valentin and others, by which irritation of the sympathetic and the roots of the cervical nerves produced contractions in the aorta, and the still more important experiments of Waller on the former nerve in the neck, section, or ligature of which caused enlargement of the minute arteries, accompanied by elevation of temperature, while application of the galvanic stimulant for a brief period effected their contraction to the ordinary calibre. In the disease under consideration, there is first of all increased unrhythmical pulsation of bloodvessels, and ultimately permanent dilatation—the proof of the latter occurrence will be adverted to when I come to treat of the thyroïdal enlargement and proptosis. That the influence of the vaso-motor nerves is perverted, and that from this cause results the irritation of bloodvessels, and ultimately the serious impairment of that structure in them by which through nervous energy the circulation is properly maintained, can scarcely be said to admit of doubt. The question is, whence arises this morbid influence? is it, as Dr Laycock has ingeniously endeavoured to establish, ganglionic, affecting certain central portions of the vaso-motory apparatus. There are certainly not wanting features in this most interesting disease which appear to lend support to this view; but it appears to me as still more probable that the

influence is exerted chiefly on the nerves of bloodvessels themselves, and that just as in the affection of the heart already discussed, so in the bloodvessels it is the blood which operates injuriously on them. It is true that there are no direct experiments to establish the correctness of the view, that bloodvessels may be stimulated to contraction, and if so, the subsequent changes may be imagined,—directly through the medium of their own nerves. There are great difficulties in the way of such experiments, but at least there are no experimental observations which oppose the conjecture, and there are some facts which give it probability. Dr Carpenter sees no reason to doubt that by the sympathetic the impression of imperfectly-arterialized blood circulating through the systemic vessels may be conveyed to the spinal cord.¹

There remain for consideration the bronchocele, and the remarkable appearance of the eyes. The enlargement of the thyroid gland, which is met with in such circumstances, varies very considerably as regards size, from a mere fulness, to a bronchocele of no inconsiderable dimensions. In its nature, likewise, there exists some variety dependent in great measure on the length of time during which it has existed. At first, it is very evidently the so-called vascular bronchocele,—the gland is occupied to a great extent by blood, the bloodvessels are distended, and the thyroïdal arteries, like the carotids and other superficial trunks, pulsate more or less vehemently; the thrill or fremitus experienced, when the hand is placed over the tumour, is generally considerable. To the touch the bronchocele at this stage feels uniformly soft. Beneath the skin which covers it the superficial veins are seen unduly prominent and loaded. Suddenly, as in instances detailed by Dr Robert Taylor, the bronchocele may appear, ordinarily the swelling occurs gradually, often with considerable rapidity, always in succession to the derangement of the heart and bloodvessels already described. The bronchocele may disappear suddenly; while yet recent its size is readily affected by treatment; it has entirely disappeared in not a few instances. Nevertheless there is a manifest tendency to the swelling continuing permanent; when so, certain important changes are noticeable,—it has generally somewhat diminished, has become less vascular, not so pulsatile, and of denser consistence. Hypertrophy of gland structure, perhaps cystic formation, and permanent dilatation of bloodvessels, have in these cases resulted. In endeavouring to explain the occurrence of the vascular pulsatile bronchocele under such circumstances, assistance is obtained from attending to the normal structure of the thyroid gland, and, particularly, to the size and distribution of its bloodvessels. All anatomical descriptions of this body have reference to the remarkable vascularity which distinguishes it. A ductless gland presumed to be concerned in the process of blood elaboration, it is invested by a thin layer of dense cellular tissue, by which it is connected with adjacent

¹ Principles of Human Physiology, page 273.

parts, receives support to its vessels, and is imperfectly separated into vesicles of small but varying size. As to its bloodvessels, the thyroid gland is distinguished by their number, large size, and free inosculation. "In fact," says a recent anatomical writer, "it appears to be composed of a tissue of arteries and veins."¹ It has two and sometimes three independent sources of blood-supply, and the veins are equally numerous and large, forming a flexus upon it. Having, as Dr Begbie and other writers have already done, spoken of the bronchocele as vascular, and entertaining no doubt that the augmentation in bulk of the gland depends upon arterial and venous congestion, associated with dilatation of both sets of vessels in the more advanced stages of the malady, having witnessed sudden and very considerable increase in its size, and its visible pulsations redoubled in force, when the heart's action became excited, I explain the enlargement of the thyroid gland in such cases as are under consideration, by a reference to the number and size of its bloodvessels. Dr Laycock has, however, argued that, depending on nervous interference, the pathological condition is to be connected with a lesion of a special nervous centre. We know the sources of nervous supply to the thyroid gland: these are twofold,—from the laryngeal branch of the pneumogastric, and the cervical ganglia of the sympathetic. I do not know any circumstances in the cases of bronchocele we are considering which would certainly lead me to suppose that a particular definite portion of the nervous centres is the seat of lesion. On the other hand, recognising excited vascular action, and afterwards dilatation of arteries as well as veins, not limited to the thyroid gland, though well-marked in it, but seen more or less in the whole vascular system, I am led to believe that while the nervous system is certainly at fault, it is essentially the vaso-motor nerves in their intimate distribution to bloodvessels which are affected, that this is specially marked in the thyroid gland, because it is so extremely vascular; and again, that a hæmic origin as readily or better explains the phenomena, than the direct operation on the nervous system of some obscure cause. It may be objected to this view that bronchocele is of less common occurrence in connexion with anæmia than such observations seem to imply. Upon this point I would beg to remark that I have often noticed a moderate degree of vascular thyroidal fulness, in persons of both sexes, who, having lost blood, presented some appearance of anæmia. I lately saw a youth labouring under scorbutus, and who had suffered two attacks of epistaxis, one very severe; he was of anæmic aspect, had palpitations, general vascular pulsations, and a small bronchocele.

Anatomically, as regards its great vascularity and ductless nature, and physiologically, as in all probability concerned in the elaboration of blood, the spleen may be classed with the thyroid gland. An increase in size of the latter organ has been noticed in several instances

¹ Holden's Manual of Dissection of the Human Body, page 16.

of associated bronchocele and exophthalmos, and has been specially referred to by Sir Henry Marsh, Basedow, and Dr Begbie. In one case the spleen weighed twenty ounces, in other two it was found enlarged. Heusinger has particularly directed attention to the condition of the spleen, which he found after death much increased in volume, and manifestly diseased. I have been able in two well-marked examples of the disease to satisfy myself that the size of the spleen was considerably augmented.

Passing now to the consideration of the remarkable appearance presented by the eyes,—the so-called exophthalmos. It is well ascertained that in this disease there exists a degree more or less marked of prominence of the globes; that vision is little, often not in the least degree affected; that the feeling of fulness and tension, varying greatly as the heart's action, is comparatively calm or much excited, is not ordinarily attended by any visible redness or injection of the conjunctival or sclerotic membrane; that, except in very advanced instances of the disease, there is no interference with visual accommodation; that the eyes under gentle pressure can be caused to retreat into the orbits; and, lastly, that the pupils are, in their normal state, contracting on exposure to a bright light. Such has been the condition of the eyes and of vision in all the cases of this disease which have come under my own notice, and this description coincides with the statements of Dr Begbie and Dr Stokes, as well as those of Mr Walker, Dr Mackenzie of Glasgow, Dr Argyll Robertson, and other oculists. I have never seen in any case the least degree of squinting, even to so slight an extent as to depend on what may be called a want of tonicity of the ocular muscles, never ptosis, never nystagmus or twinkling of eyelids or eyeballs, or increased vascularity of the conjunctiva, or any corneal affection; nothing in short to indicate the existence of a lesion of the nervous centres, cerebral or spinal; nor have any of the patients who have come under my own care suffered from orbital neuralgia of any kind or degree. I seek, then, in the condition of bloodvessels the cause of the prominence of the eyes. A distended state of the ophthalmic vessels in all probability does exist. Increased vascularity of the choroid has been found by Graefe and Withusen, the latter of whom expressly states that a high degree of congestion of the vascular membrane of the eye is often combined with prominence of the eyeballs. The veins of the choroid are placed on the external aspect of the membrane, and are arranged in drooping branches, "*vasa vorticosa*." The arteries are found within, and form a very minute network, the "*tunica Ruyschiana*;" but with the dense sclerotica covering the choroid, it is inconceivable that the distention of these vessels can give rise to any great amount of ocular prominence. Nevertheless, in their congestion, and still more in that of the ophthalmic veins which, receiving many branches in their backward course, terminate in the cavernous sinus, it is not improbable that the cause of the proptosis exists. The con-

gestion, however, just as in the congestion of the thyroidal vessels is determined by a nervous lesion—not, as I have already observed, a lesion of nervous centres—but by injury done to the “vaso motor” nerves themselves. Here, too, there appears to me no important objection to the view that the impoverished state of the blood is the original morbid cause acting on the nerves of bloodvessels; and it is remarkable with what uniformity the protrusion of the eyes has by oculists, at least, been regarded and styled anæmic. It is not fatal to this view that no congestion of the ophthalmic veins has been found invariably in such cases after death;—it has sometimes been found. Such an appearance does not continue long, the blood readily passes into other and larger trunks than the smaller veins which it had occupied before, and the adjacency of the veins to the sinus may account for its more rapid disappearance in the case of the ophthalmic veins. But the enlargement of veins has been frequently met with,—the jugular veins, the thyroidal veins, the vena cava inferior, these are all mentioned in different cases as having been found greatly enlarged. The permanent dilatation is more likely to occur in veins than in arteries, for the former, while possessing essentially the same structure as the latter, have less of the true elastic tissue. That the dilatation of the veins in the neck, as well as in other parts of the system, may be in part due to the distending influence of an accumulation of blood in them, which in its turn results from a diminution in the influence exerted by the contraction of muscles on them is not improbable, we know that thereby the venous circulation is in considerable measure maintained, and if the blood be impoverished muscular energy will likewise suffer. This is, I think, a more probable view than that of Dr Marshall Hall, that the protrusion of the eyes was due to pressure on the veins, exerted by the muscles of the neck. Mr Walker has signified a modified assent to this view; but if the action of the muscles was moderate the venous circulation would be only maintained, and if violent, besides seeing the phenomenon, we should find, at least in some cases, the trachelismus of Marshall Hall produced;—this I never heard of. Dr Laycock having adopted another theory of the cause on which the protrusion of the eyes depends, has endeavoured to strengthen his position by a reference to the important experiments of Budge and Waller, and of Claude Bernard, on the sympathetic in the neck.¹ Interesting and im-

¹ The late M. Aran, in endeavouring to explain the etiology of the exophthalmos associated with bronchocele, and cardiac, as well as vascular disturbance, had made full use of the important experiments of M. Claude Bernard, very specially attaching importance to the influence exerted by the sympathetic on the orbital muscle of H. Muller, the action of which is to carry the eyeball forwards. Dr Laycock, availing himself of still more recent experiments by the same physiologist (*Recherches experimentales sur les Nerfs vasculaires et calorifiques du grand sympathique*,—*Comptes Rendus*, 18 Août 1862), has ingeniously argued that heat is the proximate cause of the nervous and anæmic palpitations, pulsations, and thrills.—*Edinburgh Medical Journal*, July 1863.

portant as these are, however, I do not see that they nor the more recent experiments of the last-named physiologist have any immediate bearing on the eye affection which is found in connexion with bronchocele. It is, in the first place, true that the former occurs, though that is very rare without the latter, and therefore the pressure of an enlarged thyroid on the cervical sympathetic could not explain the relationship when it did occur. This, however, while at one time the view entertained by Dr Laycock, has long been abandoned, and, founding on the experiments of the accomplished physiologists referred to, he has embraced the opinion and ably supported it, that there is a definite tract of the cord intimately connected with the ganglionic nervous system, which is the seat of lesion,—a tract which maintains through the sympathetic and cerebro-spinal ocular nerves a most important relation. This tract, too, is no doubt in connexion with the heart and bloodvessels in the neck, and hence may be assumed to arise their disturbance. I have already attempted to show that this explanation of the cardiac and vascular excitement—and the latter includes the bronchocele—is unnecessary, and that the operation of an impoverished blood on the vaso-motor nerves of the sympathetic, at least as satisfactorily accounts for their implication; and I think, further, that there are grave objections to the view, that a lesion of the cerebro-spinal system, acting through the cervical sympathetic, determines the proptosis which we meet with in such cases as those now under consideration. In the cavernous sinus the sympathetic is connected by branches with the third, fourth, fifth, and sixth nerves, besides this, has, with two of these, the third and fifth, other important connexions, and itself governs the radiating fibres of the iris. Now, were the cilio-spinal region of the cord, "*regio cilio spinalis*," as Budge and Waller have styled it, or the sympathetic trunk in the neck, or any of its ganglia, the special seat of irritation, it may be inferred that some abnormal condition of the muscles, governed by the third, fourth, fifth, and sixth nerves, or an abnormal state of the pupil, which is under the control of circular fibres, receiving supply from the third pair and the fifth, and radiating fibres which filaments from the sympathetic govern, would have been found and described. Such, as already stated, has not been the case. Neither convergent or divergent squint, nor contraction, nor dilatation of the pupil, nor ptosis, have been noticed. That such conditions have been observed in some instances of proptosis is certain, but not in instances of the disease with which we are occupied. Petit's shrewd discovery, more than a century ago, that section of the united pneumogastric, and sympathetic in the neck affected the pupil; the queer gropings of Testa, forty years ago, half in the dark;¹ the philosophical conclusions drawn by the late Dr John Reid, respecting the influence of the sympathetic on the pupil; the brilliant experiments of Valentin,

¹ *Delle Malattie del Cuore*. See chapter ix. of 2d volume, entitled *Della cecità, che talvolta sopravviene ad alcuni Cardiaci*.

Budge, and Waller, and Claude Bernard, not less than the patient clinical observations of Dr W. T. Gairdner, Dr Walshe, Dr Ogle, and many others, have shown that there exists no more certain result of irritation of the cervical sympathetic, and very probably of the spinal centre with which it is connected, than a modification of the pupil.¹ One other nervous phenomenon I have noticed in cases of associated exophthalmos and bronchocele, namely, an exalted temperature, of which the patient herself often complains, not of face, or neck, or chest alone, but of general internal heat, sometimes experienced greatly in the feet: the dilatation of minute bloodvessels most satisfactorily explains this condition.

Before adverting to treatment, and mentioning certain general conclusions to which the foregoing observations seem to tend, I desire to communicate very briefly the history of two cases of vascular bronchocele with exophthalmos, which have recently come under my notice in the Royal Infirmary.

CASE 1.—P. B., *at* 34, admitted into Ward 15, Royal Infirmary, 6th November 1862. Married nine years, and has had one child. Has for a long period suffered from scanty menstruation, with occasional intervals of total absence of the discharge. One of these intervals extended over a period of eleven months. Has enjoyed, on the whole, better health since her marriage than before it. For some months previous to February 1862, suffered from profuse leucorrhœa, and, after recovering from this, continued in a very weak state. In June had several profuse bleedings from the nostrils, and these attacks, though lessened in severity, have continued to occur till the present time. While so suffering, about June she began to have palpitation of the heart, from the first accompanied by buzzing noises in the head, and severe headache. About a month after the palpitation had commenced she observed a fulness about her neck, and, after the lapse of another month, her friends had remarked an altered expression and prominent appearance of the eyes. Throughout the summer has had frequent looseness of the bowels, and has noticed that the stools often contained portions of undigested food. Has latterly become very nervous and depressed in spirits.

On admission, the patient has a decidedly anæmic appearance; the eyes have a prominent aspect, and peculiar wild expression ("expression sauvage" of French writers); the eyes feel hot and tense to the patient, but her sight is unaffected; there is no peculiarity about the pupils, or the muscular apparatus of the eyeballs or eyelids, no orbital œdema. There is a bronchocele of consider-

¹ It must be held in remembrance, as mentioned by Dr Argyll Robertson, that Dr Präcl of Brunswick has found in three out of nine cases that the protrusion of the eye was unilateral, the right being the one affected—a circumstance which, while not directly lending support to the anæmic theory, does not, I admit, oppose the view of the proptosis depending on a lesion of nervous centres.

able size, more prominent to the right than left side of neck, and much pulsation in the thyroidal and carotid arteries; the jugular and thyroidal veins appear distended. With the stethoscope a loud blowing sound closely synchronous with the systolic action of heart is audible, and when the hand is applied over the tumour a distinct thrill is distinguished. The heart's action is much excited—the beats 120 per minute—the rhythm altered considerably and variously. Region of precordial dulness not extended; soft blowing murmur, with first sound at base; loud bruit de soufflé in the arteries of neck, arms, and lower limbs; very loud in abdominal aorta, the pulsation of which is readily seen, and proves distressing to the patient. She is easily agitated, and now somewhat desponding.

In this patient's case I had the first opportunity of combining the general regiminal treatment and the use of iron, as recommended by Dr Begbie, with the employment of belladonna. After the application of a large plaster of belladonna, for a few days, a very marked diminution in the size of the bronchocele, and a sensible amelioration in the condition of the eyes, had resulted.

While the application of the plaster was continued, I prescribed atropia internally, in doses of one-sixtieth of a grain, morning and evening, only interrupting its administration when a complete dilatation of both pupils had resulted, and the patient was unable to read.

Greatly improved in health, this woman left the hospital a little after Christmas. I have seen her twice since that time. On the last occasion, only a few days ago, when availing herself of an excursion by train from the part of the country where she resides, she came to town. I found the eyes normal; the bronchocele still existing, but not as a vascular bronchocele; a small firm tumour alone remained, while cardiac palpitation and vascular pulsations have vanished. Her appearance is no longer anæmic, and, twice since she left the hospital, menstruation has taken place.

This is in every respect a favourable case. Treatment was employed at an early period, and speedily produced a beneficial effect. In cases distinguished by the continuance of the characteristic symptoms for a much longer time, so successful a result is scarcely to be anticipated. That a relapse may possibly occur is not to be questioned; but familiar as I am with one of the earliest cases recorded by Dr Begbie, in which a perfect cure has resulted, and now at the end of fifteen years continues, I am disposed to think that such an occurrence is unlikely.

CASE 2.—Mrs —, æt. 37, mother of seven children, with her strength greatly reduced from nursing an infant of thirteen months, and repeatedly a sufferer from menorrhagia. Anæmic in appearance; has a considerable bronchocele, and in a marked degree the peculiar prominence and expression of the eyes. These symptoms have developed themselves within the last two months. Is not

nervous. The beating of heart and arteries, and the auscultatory phenomena connected with these, are precisely as in the former case. This woman states positively that she never sustained any sudden shock, or mental distress of any kind.

After a few weeks' treatment the patient has greatly improved under the use of iron, with belladonna prescribed in the same manner as in the case already detailed.

The plan of treatment pursued in these cases and in others which have come under my care has had reference, firstly, to calming the excited action of the heart and bloodvessels; and, secondly, to improving the evidently deteriorated condition of the blood. I believe that in order to remedy the disorder both of these indications must be met, the one without the other will fail. Belladonna is a powerful excitant of bloodvessels, acting on the unstriated muscular fibres in them. The experiments of Brown-Séquard upon animals have sufficiently established this point. Again, as a remedy, belladonna is known and prized from its possession of this very property. Acting in all probability on the bloodvessels of the iris, it causes dilatation of the pupil, on the bloodvessels of the mamma it arrests the secretion of milk, on the muscular coat of the intestine action of the bowels. Administered in the form of its extract, in doses of one-sixth or one-fourth of a grain, or as atropia, in doses of one-sixtieth, or applied as a plaster over the enlarged thyroid gland, I have found this remedy to produce speedily a remarkable effect on the eye, in causing its retirement and in removing the peculiar staring expression; on the thyroid gland, in leading to the rapid, or at all events speedy diminution in its bulk; on the heart and bloodvessels in modifying and controlling their excited action. I cannot doubt that in producing these effects its special action is excited on the dilated vessels, stimulating them to rhythmical contractions, and thus overcoming congestions. It is from its action in this way that the late Professor Schroeder van der Kolk found belladonna so useful a remedy in epilepsy,¹ and that Brown-Séquard has satisfactorily tested its claims to employment in cases of paraplegia dependant on congestion of the cord or chronic inflammation.² But while belladonna, and specially atropia, produce these effects, and thus greatly modify the distressing symptoms in such cases, unaided neither will accomplish a cure. Iron, as the "sum-mum remedium" in blood impoverishment, must be administered, and that steadily for a time. Thus combined, I think, in comparatively recent cases, the most desirable results will speedily be obtained. Dr Begbie had found iron in combination with henbane, a plant belonging to the *Atropaciacae*, and exerting some properties

¹ On the Spinal Cord and Medulla Oblongata, and on the Proximate Cause and Rational Treatment of Epilepsy.—New Sydenham Society's edition, page 275.

² Lectures on the Diagnosis and Treatment of the Principal Forms of Paralysis of the Lower Extremities. 1861.

similar to belladonna, most serviceable; and before I was led to employ the latter, I always used the tincture of hyoscyamus with the tincture of the muriate of iron. Trousseau has employed digitalis, and speaks with confidence of the remedial virtues of cold compresses when applied over the thyroid gland. The operation of the latter is evidently directly on the vaso-motor nerves, and leads to a sympathetic contraction of bloodvessels in other parts. Iodine is not only useless as a remedy in this form of bronchocele, but, as M. Beau and others have shown, positively injurious. None of those means which are ordinarily employed with benefit in the treatment of blood impoverishment, associated with more or less of nervousness or hysteria, should be neglected,—advantage is certainly to be derived from change of air and scene; but, on the other hand, the disease is emphatically one requiring for its relief the continued use of such remedies as have been referred to. It has been noticed by some writers that when a woman affected with this peculiar disease becomes pregnant, a manifest improvement in her condition occurs—a circumstance only to be explained by the change which takes place in the condition of the blood while pregnancy exists, and pointing, therefore, to the hæmic origin of this complex malady.

I am, therefore, disposed to conclude,—that the true pathology of the bronchocele and exophthalmos, found in connexion with cardiac palpitation and vascular pulsations and dilatations, lies both in the blood and in the nervous system, but that the “*primum mobile*” is the former;—that an altered state of the blood—for a time stopping short of what is generally known as anæmia,—but in many cases amounting to well-marked anæmia, acts directly on the nerves of bloodvessels, and on the nerves of the heart—“*Sanguis moderator nervorum*”;—that, as a consequence, their rhythmical movements are seriously affected, and dilatation of the heart’s chambers, and of bloodvessels, arteries, but chiefly veins, results;—that for a lengthened period the bronchocele is truly a vascular enlargement and dilatation; but that, in course of time, hypertrophy and degeneration of gland-structure result;—that the exophthalmos, which is not a necessary consequence any more than the bronchocele of the disordered state of blood, and neurosis of bloodvessels, depends upon congestion and vascular dilatation of the ophthalmic vessels, with effusion of serum into the post-ocular cellular tissue;—and, lastly, that a plan of treatment directed to the improvement of the condition of the blood, and, at the same time, to the state of the nervous system,—is successful in effecting a cure, provided those organic changes in the heart, to which reference has been made, have not already been induced.

ARTICLE III.—*Medical Notes on New Zealand.* By JOHN BATTY TUKE, M.D.

THERE is perhaps no country under the sun which has been made in so short a space of time the subject of so many books, tracts, pamphlets, and publications in general, as New Zealand. The missionary has descanted on the virtues and peculiarities of his antipodean flock; the traveller has described the features of the country and his adventures; the soldier has recounted his doubtful triumphs; and the speculator has drawn vivid pictures of the health, wealth, and happiness accruing to those who purchase land in this most desirable colony; so much, in fact, has the ground been trodden, that we doubt much if any fresh track could be discovered, if it were not that no medical man has as yet entered on the subject from a professional point of view. This is, however, by no means the least interesting aspect, nor is it one which should attract the attention of the physician only, for though some details are hardly suitable for the general public, yet many afford a subject for the inquiries and meditations of the philanthropist and the political economist.

To Dr Thomson, late of the 58th Regiment, we are indebted for a work deeply interesting in its details,¹ and possessing a quality rare amongst the multifarious works on New Zealand, viz., strict truthfulness and abrogation of party feeling, and which dares to describe things as they were and are; still, from the difficulty of discussing medical questions in a work intended for general reading, there are many points omitted, and facts only passingly alluded to, which would, no doubt, have been discussed if the work had been of a more professional nature. Almost all works on New Zealand remark on the evident decline of the Maori people, but in so cursory a manner as in no way to attract attention to a subject interesting in itself, and full of lessons and warnings not to be disregarded by more civilized nations. It is sad, indeed, to see evidence on every side of the gradual extermination of a fine race of men, whose intellectual as well as physical capacities, if properly directed, are capable of by no means limited development; but that such is the case there can be no doubt; large villages are now either deserted or very thinly inhabited, which, twenty-five or thirty years ago, teemed with inhabitants, and the comparatively small number of children to be seen in most *pas* is evidence of the rapidity with which the falling off takes place.

Interneine war was at one time, and still is, to a limited extent, one of those curses tending to diminish population; but worse enemies than war are more secretly and quietly at work, effecting their purpose as surely and more swiftly than the deadliest struggles

¹ The Story of New Zealand. By Arthur S. Thomson, M.D., Surgeon-major 58th Regiment. 2 vols. Murray.

of former times. Their fights now-a-days are carried on on a system which seldom entails much loss of life, whereas their old hand-to-hand combats were attended with indiscriminate and ruthless slaughter.

Infanticide formerly was very prevalent, and amongst some tribes in the interior is occasionally but rarely heard of at the present day; as its victims were invariably females, the results were all the more felt.

The grand cause, however, of the decline of the Maori nation is scrofula, with all its attendant evils,—the melancholy result being apparent to the most casual observer on visiting a native village: at every turn the hacking cough and distressed breathing of phthisis reach the ear, the stain of struma may be seen evidenced by necks scarred, or exhibiting open sores, and the frequent occurrence of strumous ophthalmia; the children are almost invariably pot-bellied and ill nourished, and teeming with vermin,—the result of neglect and filth. It is a sad fact, but only too true, that fully fifty per cent. of the Maori population show traces of scrofula, manifested in one or other of its varied symptoms.

When the Maori grows up strong and untainted by disease, a finer human animal is rarely seen: with a well-developed chest, broad shoulders, clean made limbs, short from knee to ankle, a well-set-on head, and a warm copper-coloured skin, he presents an appearance which, when accompanied, as is very often the case, with a pleasing expression, is very engaging and interesting. He is capable of great exertion, more particularly in carrying weights on the back; even old, shrivelled, and apparently infirm women, may be often seen staggering under weights which would try the strength of most Europeans. This, however, is their forte; in other forms of work they are inferior to the settlers in endurance, as well as in muscular strength,—a fact which has been frequently demonstrated by experiment. The healthy Maori girl is often as fair as the English brunette, but more frequently darker,—not so much so, however, as to prevent an occasional degree of colour in the cheek: she has, in the great majority of instances, long black hair and eyelashes, dark hazel eyes, and a figure which, although not modelled on European ideas of beauty, is by no means ungraceful. Many are remarkably handsome, from the peculiar expression of softness and languor apparent in the face, but the shoulders are invariably square, and the breast has none of the fulness so peculiar to European women. The men retain the appearance of youth much longer than the women,—in fact, many girls look old and shrivelled before the age of twenty-five; after the first two or three confinements the mammæ become pendulous, and the whole surface of the skin shrivelled and dry.

The causes of the wide-spread existence of scrofula may be considered as remote and immediate, or predisposing and exciting. The first, the remote or predisposing, are referable to the fact that

the progenitors of the New Zealanders emigrated from a hot climate, the Eastern Peninsula, to one of a much more temperate character, and to this may be added the hypothesis of the probable close relationship of the original emigrants. The second, the immediate or exciting causes, are referable to habits of breeding in and in, and other mal-arrangements of cohabitation, such as early marriages, promiscuous intercourse, habits and customs, inferior character of food, and changes in their mode of living introduced by Europeans; all which, acting on constitutions predisposed to scrofulous affections, have elicited the many manifestations of the disease in phthisis, tabes mesenterica, running sores and sinuses, barrenness of women, mental affections, etc.

There can be but little doubt that the Maoris are the descendants of a small body of Malay emigrants who arrived in the Northern Island about 400 years ago. The evidence of Eastern origin is borne on their faces, many, especially women, could hardly be distinguished from a Malay of the present day: many of their customs and words bear a similar analogy, and native tradition, above all, points out the Eastern Peninsula as their original country. Natives of warm climates who have emigrated to colder regions have invariably been subject to degeneration, and have been more or less the victims of phthisical affections, and other symptoms of the development of a scrofulous diathesis. This has been the case with the Maoris: New Zealand, although amongst the warmest of those climates classed as temperate, is far below the average temperature of the Eastern Peninsula; sharp frosts occasionally occur in winter, and southerly breezes are always sharp and bracing. When super-added to this we have the hypothesis that the original immigrants were closely connected, we find another reason for supposing that the strumous diathesis has been slowly generated, but remained dormant amongst the Maori race for some twenty generations, and has only needed the exciting causes mentioned above to develop itself in full force.

It is difficult to say which of these secondary or exciting causes is the most deleterious in its results, but I propose to consider them as follows: breeding in and in, associated with promiscuous intercourse, and too early marriages or connexions; the character of general diet; the tendency of their habits and customs; and changes introduced by Europeans.

Too close consanguinity in marriage is a mistake which the natives themselves are beginning to acknowledge, although, with their peculiar Asiatic apathy, they care not to prevent it, except by encouraging connexions between European men and women of their own race. For generations breeding in and in has been the rule, not the exception, and still continues to be so; one of its most apparent consequences is sterility, although natives assign other causes for this fact, which will be noticed hereafter. On entering a native village the first thing that strikes a careful observer is the

small number of children in proportion to the adults, and more particularly of youths and girls between the ages of twelve and twenty : on inquiry he will find the undoubtedly great mortality amongst infants insufficient to account for the sparseness of the youthful population ; but if he pushes his investigations he will discover the number of breeding women to be considerably below the average of European, especially colonial settlements. In a pa on the Wanganui river, named Mara Kowhai, out of a population of 200 inhabitants, only two fertile females were to be found : in this instance the natives assigned as a cause the constant use of fermented food,—a subject which will be considered hereafter. That sterility is frequently the result of consanguinity may be deduced from the fact that in many cases where childless women have subsequently formed connexions with Europeans, large and healthy families have resulted. This is so commonly the case that parents will frequently endeavour to give their daughters to white men, mainly for the purpose of rearing to their tribe half-caste children, whom they greatly prize, knowing the benefit to be derived from the infusion of new blood. The concubine in this case does not suffer in social position in the least, but, on the contrary, is invariably eagerly sought after by native men as a bona-fide wife, after she and her European friend find it mutually agreeable to separate. The half-caste is a remarkable improvement on the native stock, and not unfrequently is superior to his European progenitor. He is, of course, lighter in colour than the full blood, and combines in a wonderful degree the best physical features of both parents. His mental faculties are generally supposed to be inferior to either. One thing is certain, all his predilections and instincts are for the mother's race. I say the *mother's* race, as it is very rare indeed (I only know of one instance), for a white woman to cohabit with a Maori man. I have seen half-castes in wrestling throw all native competitors, and treat like infants the strongest and most athletic men selected from a garrison composed of 400 of one of our best regiments. They make good sailors and shearers, and can work hard at anything but continuous labour, although their natural disposition is rather more listless and indolent than the Maori. Quadroons are as pale as Europeans ; and the second cross seems to eradicate the Maori blood, as the features become quite European, the manifestations of scrofula are absent, and the disposition tends completely to the European side of the house.

Sterility is not, of course, the invariable sequela of too close connexion in marriage, nor yet the only bad result ; but couples so closely related, if they have children, seldom rear them, the offspring dying when infants, or in early childhood. This fact has become proverbial amongst the natives ; but, from their mode of living, one tribe separate from another, the youth of both sexes in one village are thrown together so much as to render it difficult to prevent too close intercourse.

Incestuous connexions are by no means uncommon, although not recognised by native customs.

Too early marriage is a very fertile source of sterility, and of puny and strumous children. Girls are often married at twelve and thirteen years of age, and in all probability have parted with their virginity at a much earlier period. The offspring of such marriages are invariably puny and strumous, very frequently dying off, exhausted by discharge from running sores, or the victims of *tabes mesenterica*. Promiscuous intercourse may be also mentioned as one of the causes of sterility, and I believe one of the most frequent, although such a statement would be most likely repudiated with scorn by their spiritual masters and pastors.

It would be perfectly unnecessary here to dilate on the miseries so frequently resulting from too close intermarriage, but if any one should doubt its baneful effects, let him merely inquire from any one who has any knowledge of the New Zealanders and their habits, to be convinced that to it the degeneration of a fine race of men is to a great degree attributable.

The character of their usual diet is eminently calculated to encourage the development of scrofula. Dr Thomson lays great stress on the fact that before the introduction of the potato their vegetable articles of food were of a doubly nourishing nature when compared with that esculent, and argues that its introduction has been a curse instead of a blessing, as it has, according to his experience, almost entirely superseded the use of the taro, kumera, and other roots in previous use.¹ Even allowing this to be the case, Dr Thomson forgets that along with the potato, wheat, maize, and pigs were introduced; the first two of which are in general use among all tribes: to such an extent, indeed, is wheat employed that few tribes of any importance are without one or more flour mills, worked by water-power. Maize is used in large quantities in various forms, and affords an article of food of which all natives are passionately fond. Although the pig can hardly be considered as a staple article of diet, as it is not generally in every-day use, still at feasts and other occasions of gathering, pork is largely consumed. Surely these three most important items fully and more than compensate for any shortcoming of the potato, which, if not in actual quality, certainly in quantity and fecundity is vastly superior to the small and less prolific roots in previous use. Moreover, in the district which came under my particular notice, the native vegetables

¹ "As Captain Cook saw no New Zealander with the slightest external mark of disease, it is therefore inferred that scrofula in its present extent is a new malady. This unhappy change has been brought about by the natives having lived since Cook's days on potatoes, the lowest species of human food, and much less nutritious than their ancient diet. It is impossible to explain this briefly, but one pound of taro contains nutriment equivalent to two pounds of potatoes; one pound of fernroot is nearly equal to three pounds of potatoes; and gluten and albumen are more abundant in the ancient sweet potato than in the European potatoes."—*Story of New Zealand*, vol. i. p. 216.

were in use almost as much as the potato, and in no part of the colony is scrofula more rife.

To the Maori's *general* employment of vegetable food rather than to one particular root may be ascribed the consequent bad results. His animal food consists of birds, cooked in their own fat, eels, lampreys, and sea-fish, fresh and dried; these articles, however, are chiefly used on high days and holidays, or in regular feasts; the vegetables are the *kumera* or sweet potato, *taro*,¹ a root abounding in starch, fernroot,² gourds,³ and pumpkins, the pith of the mamaku,⁴ one of the tree ferns, the leaves of a degenerated turnip, sow-thistle, and various fruits, such as peaches, melons, grapes, apples, cherries, etc.; along with these, as has been said above, potatoes, wheat, and Indian corn are consumed. Looking over this list, it will be apparent that vegetables form the *every-day* diet of the Maori, and consequently a very considerable bulk of food is necessary to appease appetite, few natives rising, if it lie in their power, from a meal without a protruding stomach. This gorging, in connexion with the other invariable tendencies of a vegetable diet, results, of course, in many forms of dyspepsia, which, when acting on a predisposed constitution, is active in accelerating the development of scrofula. Dysentery and diarrhoea in summer and autumn are rife and severe in character. Tradition, supported by the correlative evidence of names given to various places, points to the breaking out of severe epidemics of these diseases in former times, which have been of such importance as to cause the spots where they occurred to be designated by the chief symptoms of the complaint. In the present day, the native patient is unable to stand up long against a severe attack, his stamina being insufficient to support him through any exhausting disease. Moreover, it is impossible during the attack to prevent him from eating fruit, or drinking large quantities of water if impulse leads him thereto.

To the simple diet, and the absence of intoxicating liquors, must be ascribed the extraordinarily rapid recoveries made by natives from serious and severe injuries. Many instances might be adduced of this fact; one or two, however, may be mentioned. The tattooing, a very painful and lengthened operation, seldom if ever produces erysipelas. The ensuing inflammation, although intense for a time, subsides in from two to four days. When we consider that the process consists of chiselling out the skin, and application of an irritating dye, and that it is repeated at stated intervals till the whole face is patterned, we may well wonder that the system is not seriously affected; but such is not the case, the patient's bodily health does not suffer whilst undergoing this self-imposed torture.

On one occasion, I met two Waikato chiefs travelling towards the south of the island, who had been wounded at Taranaki two months

¹ *Caladium esculentum*.

² *Pteris esculenta*.

³ *Sagenasia vulgaris*.

⁴ *Cyathea medullaris*.

before; one had been shot through the thigh, the bone having been fractured, and the bullet escaping on the opposite side. The leg was shortened, and not so straight as if it had been carefully set in a long splint, but union had taken place, the wounds healed, and the patient was convalescent, and treated the whole affair with all the indifference so peculiar to the native character. The second had received a bullet in the right arm, which was still lodged there, causing a slight discharge from the comminuting wound, but occasioning little pain or interference with the use of the arm. The bullet was cut down upon and easily extracted, and a few sutures applied; in a fortnight the wound healed, and the limb was nearly in working order. Numberless instances might be brought forward, but the above are sufficient to illustrate the fact.

However much the simplicity of diet may be of benefit in individual instances and special cases, its tendency doubtless is anything but salutary to them as a community. The children about a pa are pot-bellied, and generally present an ill-nourished appearance, subject more or less to diarrhoea or dysentery, frequently in a chronic form. *Tabes mesenterica* is the cause of at least half the deaths before ten years of age, and its victims present a more than usually revolting appearance. Distressing as the symptoms of this disease are among Europeans, they are infinitely more so in the Maori; the skin, instead of a clear, becomes a dirty dark-brown, more particularly about the abdomen; the eyeballs appear very prominent, and to this is frequently added the red and everted eyelids, devoid of lashes, peculiar to strumous ophthalmia. The native doctors have discovered the benefit of fish-oil in this malady, their great remedy being the constant use of the oily meat of the dog-fish, which often proves beneficial at the earlier stages of the complaint.

It may be mentioned here, that the only native beverage, except water, is made from the expressed juice of the fruit of the tutu (*Coriaria sarmentosa*); it is harmless, but when the seeds have been eaten with the fruit, as has been done in several cases by European children, they have occasioned all the symptoms of narcotico-irritant poisoning, and in two instances, at least, death has resulted.

Maori habits and customs are far from conducing to the improvement of the general health. Their houses are generally damp sheds, with the floor often below the outside level, without windows or openings of any sort except a door, which a stout man finds great difficulty in creeping through, and the fire is lighted in the middle of the apartment; the whole habitation is black with the accumulated smoke of years, and the atmosphere is such as few but seasoned white men can endure. Their usual mode of sleeping is in a long low house, called warepuni, where they lie packed as closely as it is possible to do, every chink where a breath of fresh air could possibly enter being carefully closed. The result is, that

in half a hour the heat and smell become to a European intolerable, and, as sometimes happens, when a hundred sleep where there is breathing-room for twenty, it is wonderful that the results are not more immediate. The inmates, for one reason or another, come out once or twice during the night, and, casting off their blankets, smoke a pipe *in puris naturalibus*, probably refreshed by the contrast, and enjoying in anticipation the renewed steaming they will undergo on returning to their slumbers. These great and sudden alternations between heat and cold occur frequently during every day and night of a native's life; and so impossible is it to prevent them acting on the impulse, although warned of its probable bad effects, that I have failed in dissuading a native from jumping into the nearest stream when he was suffering from a burning fever. During an epidemic of measles in 1854, great numbers died from acting in this and other ways equally hazardous of obtaining temporary relief. Their habits of life thus give rise to bronchitis and other pulmonary affections, which soon degenerate into phthisis in its worst forms. Emphysema is a very common complaint, and diseases of the heart and aneurism are by no means unfrequent. Another circumstance, tending to the same result, is the introduction of European clothing; formerly the native was but lightly attired, now-a-days he wears, when visiting settlements, or on great occasions, some at least of the English articles of dress, which he immediately dispenses with when he returns to his pa; and the blanket has superseded the native flax-mat. This induces colds so frequently, that it is a common saying amongst themselves, that the blanket (thereby including all articles of European clothing) has done much more harm than good.

In the neighbourhood of the settlements, many Maoris are much addicted to spirituous liquors, but I cannot say that much physical disease is to be ascribed to their use. Although many natives drink to excess, I have never heard of a case of delirium tremens among them.

Syphilitic disorders were introduced by the Europeans, and evidence of their extension is occasionally met with. Gonorrhœa is common and mild in character, as likewise are chancreous affections, which, however, are not prevalent in the south of the island. "In 1844 influenza, in 1847 hooping-cough, in 1851 mumps, and in 1854 measles and scarlet-fever raged with great violence."¹ Each of these epidemics carried off multitudes, many of whom died from what has already been mentioned, the exposing of themselves to cold whilst suffering from the burning heat of fever. If New Zealand should ever unhappily come under the scourge of small-pox or cholera, frightful would be the result to the aboriginal population. It needs but such a misfortune to decimate and more than decimate them, as they not unfrequently aggravate the disease, and often tacitly refuse to make themselves amenable to

¹ Thomson.

treatment. It is a common remark amongst men who know native character well, that if a Maori makes up his mind to die he is sure to do so. I have met with one, and heard of many well-authenticated cases of this where no apparent sickness was present. A Maori, to all appearance well, and who certainly was not suffering from any disease of the thoracic viscera, became melancholy, apparently chagrined at life; he said he was going to die, and die he did within ten days. He brought himself very low by almost total abstinence from food; but this did not seem the result of a suicidal intention, but simply that he was as sick of food as of life. No examination could be obtained, as New Zealanders have a great horror of any such proceeding. The above was rather a protracted case; many well-authenticated instances are on record where the victim of chagrin pined away in three or four days. If, then, a native prognosticates a fatal result to his illness, it is of little use for European practitioners to try to convince him to the contrary, and all his medicines are of no avail.

Another difficulty met with in native practice is the danger of giving any drugs, mixtures, etc., in a larger quantity than suffices for one dose, as the patient, to save trouble, is very apt to swallow the bottleful at once, or to administer half to his sick child suffering from some other disease. Thus opium, for instance, can never be prescribed except in single doses, and, of course, the same is true of most other remedies.

Sufficient cause has been shown to account for the existence of scrofula amongst the aborigines of New Zealand, and the accounts of early settlers give woful evidence of the extent of its ravages. Where twenty years ago natives could be counted by scores, they can now only be numbered by units, and large pas are left uninhabited and waste. That no attempt has been made to improve this state of matters is a subject of wonder to strangers travelling through New Zealand, who have heard so much of the Christianization of the Maoris, and who know of the immense sums spent for their evangelization. That the supposed usual result of Christianity, civilisation, is absent, necessarily strikes the observer when he sees that native settlements surrounding mission stations are in the most degraded barbarianism, and that, under the very eye of their spiritual teachers, filth, physical and moral, customs disgusting and demoralizing, and debauchery in all its worst forms, exist, and call forth but a feeble bleat of dutiful remonstrance unaccompanied by the inculcation of those precepts and the production of those examples by which a people can alone be raised to that feeling of self-respect which is necessary for the successful teaching of the gospel. It is wrong to increase the moral responsibilities of those "who know not the law," unless we place them first in a position to be able to carry out its axioms.

True that the task of breaking down old usages and time-honoured customs is a difficult one; true that the native mind

is opposed to innovations and obstinate in the extreme; still I believe that the undertaking, properly and seriously begun, would be rewarded by the gradual but slow adoption of those habits which are truly said to be akin to godliness. If the promoters of any such scheme would only take into consideration the facility with which the Maori has adapted himself to many European customs, his quickness in learning and teaching reading, writing, arithmetic, etc., how naturally European tools, weapons, and clothing are adopted, they would find sufficient earnest for persevering in efforts, the success of which alone can insure a high social standing. Instead of preventing intercourse with the settlers, give them greater opportunities of learning the English language, and rather than instil into their minds the immaterial doctrines of a sect, impress on them those rules of conduct, the adoption of which will tend to develop into practice the theory they are already acquainted with. Till the stones are picked out of the stony ground, the seeds of Christianity can never take deep root.

ARTICLE IV.—*On Chloroform in Puerperal Convulsions.* By JOHN M'NAB, M.D. Edin.

THE following observations on puerperal convulsions were made some time ago, and are written with the view of illustrating the great advantage of chloroform in those diseases, over general bloodletting and the so-called antiphlogistic system of treatment. It is intended to show, in the sequel, that erroneous views of the pathology of these diseases have led to an improper method of treatment, and that, with the present advanced state of pathological science, the former system must give way to the more rational system of treatment by antispasmodics, of which chloroform is the chief.

It is unquestionably true that bloodletting, though in a great measure superseded by other more important and appropriate remedies, is, nevertheless, a prevailing system of treatment for puerperal convulsions in this country. Of this we have sufficient evidence in the different cases we find from time to time recorded in medical periodicals, and in the standard works that issue constantly from the medical press. From these it would appear that chloroform is regarded as only of secondary importance, and bloodletting vaunted as the *summum remedium*.

Considering the special therapeutic properties of chloroform and the pathological character of convulsive disorders, it is difficult to understand why so low a place should be assigned to it in the scale of remedial agents, and superiority be given to bloodletting as the grand catholicon! We can only explain this anomalous circumstance by supposing that erroneous views of the pathology of these

diseases have indicated an improper method of treatment; or that a deep-rooted prejudice against its use, or a prevailing ignorance of its therapeutic properties, has forbidden its becoming so generally used as experience of its sedative and antispasmodic properties would justify. And puerperal convulsions are not singular in this respect; the same applies with equal force to many other diseases besides. How often do we find an empirical method of treatment eagerly persisted in, and a more rational system totally disregarded! It may be alleged that any system of treatment that experience has proved to be the most beneficial, whether it be rational or not, is the one that ought to be rigidly adhered to. True it is; but the system of treatment, which consists of bleeding to seventy or eighty ounces, can scarcely be said to possess such talismanic charms as to render it superior to any other; and, even on the score of mere experience, the great superiority of chloroform to general bloodletting, as far as observation has gone, is amply verified, irrespective altogether of its being indicated by the advanced state of pathology and therapeutics.

The following case may be adduced as a typical example of that form of the disease most frequently met with; and the method of treatment adopted will serve to illustrate the inexpediency of general bloodletting, as well as the specific therapeutical effects of the free and full administration of chloroform. It occurred in my practice some time ago, and the following is an abstract of my notes of the case at the time:—

M. M'K., *æt.* 21, a dairymaid—unmarried; a robust and healthy-looking woman, residing in the country; first pregnancy, and arrived at full period of gestation. At eight o'clock A.M., on the 29th August 1859, I was requested by the midwife in attendance to visit her, from the labour being tedious and protracted much beyond the ordinary period. On my arrival, about half an hour afterwards, I found the patient in a violent convulsive fit, and was informed that she had two or three similar attacks shortly before I saw her. During the interval between the paroxysms she did not remain in a state of complete insensibility, but partially recovered consciousness. There was great prostration and confusion of the intelligence, with a tendency to coma. The membranes had ruptured eight hours before my arrival; the cervix was dry and congested; the os not fully dilated; the head high up in the pelvis, and the presentation natural. The pulse was full, firm, and frequent. The patient had been at this time thirty hours in labour.

With the view of effecting delivery as soon as possible, and of preventing the recurrence of the convulsive fits, I administered chloroform at once, and continued its administration until complete *anæsthesia* was obtained. I forthwith proceeded to apply Simpson's long forceps, and soon afterwards succeeded in delivering the patient of a fully-developed living child.

Anæsthesia was kept up for some time after delivery, and 3j. of chloroform given internally. There was no recurrence of the paroxysms from the time that the chloroform was administered till I left her. Cold applications to the head and laxative medicine were prescribed.

30th.—No recurrence of the paroxysms; consciousness completely restored; pulse still firm and frequent; bowels acted upon. 31st.—Patient expresses herself as being "quite well;" rested well last night; pulse 80; no return of the paroxysms. From this time she rapidly improved.

In advocating the superior claims of chloroform as a curative agent in puerperal convulsions to any other with which we are acquainted, and in repudiating those of general bloodletting, it is not necessary that we should pass in review the different and conflicting theories that have been held respecting the proximate cause of convulsive disorders, and the different modes of treatment that have been adopted in consequence. It forms no part of our inquiry to advert to these, excepting so much as is necessary either to substantiate or to refute our arguments. It is quite sufficient for our purpose to testify to the superior beneficial effects of chloroform by unquestionable evidence, and to show that the system of treatment by general bloodletting is not in accordance with the pathological indications of cure; and if we have succeeded in this, the position for which we have been contending is certainly established.

From the above short description of the case, it will be at once observed that it corresponds exactly with that class of cases where we find bleeding and a rigid antiphlogistic system of treatment specially indicated, and regarded as the *sine qua non* to a safe and speedy recovery. Yet in this instance how different the treatment, and how salutary the result; the patient, strong and robust, without having one single drop of blood abstracted, or any other antiphlogistic system of treatment applied, made a good and rapid recovery under the influence of chloroform alone. Here, then, is an instance of the remarkable effects of chloroform in cutting short a disease which has been characterized as one of the most formidable and most serious complaints that a medical man has ever to treat. And it is by no means one solitary instance,—no mere coincidence: many similar cases have been recorded by men of unquestionable eminence and integrity, which furnish ample testimony of the therapeutic property of chloroform in cutting short convulsive disorders in the majority of cases. And let us remark, in passing, that although our observations are merely applicable to that class of convulsive disorders termed puerperal, yet they apply, in some measure at least, to the whole class of convulsive diseases; for the different kinds of convulsions, however different their remote causes may be, are dependant, or may be regarded, for all practical purposes, as dependant, on the same proximate common cause; for, although convulsions are divided into eclamptic, epileptic, epileptiform, etc., these divisions “do not represent any thing else than ontological forms of disease, whose boundaries can alone be fixed by subjective dogmatism, or, at the best, by practical necessity.”

Braun, who is one of our greatest authorities on puerperal convulsions, tried chloroform on an extensive scale on the Continent with the most decided beneficial effects; and the same authority has been led to the conviction that general bleeding, as practised in this disease, is productive of irreparable injury in the great majority of cases, and more especially in the anæmic form of eclampsia. Professor Simpson and others, in this country and in America, have

used it extensively, and have borne ample testimony to its great superiority over any other remedy we are acquainted with in convulsive disorders. Dr Simpson has found it of the greatest benefit in infantile convulsions, after all other means of treatment had failed.

There is, then, abundant evidence of the most marked and most satisfactory effects following the due administration of chloroform as an antispasmodic in convulsions; and, with such weight of evidence, it is not a little surprising that physicians should be drawn with such reluctance from following a system that has been superseded by one more in accordance with the pathology of the disease, and fully justified by experience.

Let us now advert for a little to the method of treatment by general bleeding; and, in doing so, we must refer to some views that have been held regarding the pathology of the diseases in question. Convulsions have been regarded as depending essentially on an increased determination of blood to the brain, and general blood-letting has been held to be the most appropriate treatment.

This method of treatment is evidently based on incorrect views of the pathology of convulsive diseases; for recent observations and experiments prove that neither the proximate nor the remote cause of convulsions is to be found in a *hyperamic condition of the brain*. M. Delasiauve, who has paid great attention to the subject of convulsions, pointed out, for the first time, that in convulsive paroxysms the face is at first pale and anæmic, that the attacks are preceded by signs of a feeble circulation, and that the congestion is greater as the paroxysm begins to disappear. This observation was subsequently confirmed by Trousseau, Georget, Watson, and other accurate observers; and, besides, the experiments of Kussmaul and Tenner clearly proved that convulsions arise from an anæmic condition of the brain rather than from arterial or venous congestion.

Solly, in advocating the theory of congestion, refers epileptiform convulsions to a sudden determination of *arterial* blood to the head, and avers that as a result of this increased quantity of arterial blood, a corresponding increased quantity of nervous force is generated, which is at length discharged or carried off by the motor nerves, and produces, like an electric battery, the convulsive movements in question; but if this theory were correct, the superabundance of nervous power thus generated would produce a corresponding degree of mental excitement and irritation, which is never observed to be the case; and, besides, convulsive movements would attend any sudden determination of arterial blood to the brain, brought about either by vascular excitement or by removing any artificial compression from the carotids, which never takes place. On the contrary, we find that in the history of disease convulsions are almost coincident with the stage of depression, and not with that of vascular excitement.

Again, Dr Marshall Hall has endeavoured to establish that *venous* congestion of the brain is the cause of convulsive movements. Now, whatever show his theory of laryngismus (or spasm of the glottis) may have as an element in producing convulsions, that of sphagiasmus (or compression of the veins of the neck) stands unsupported either by experimental investigation or by clinical evidence. Romberg, Kussmaul, Tenner, and many other celebrated pathologists, describe those conditions brought about by stasis or venous congestion of the brain as belonging more to apoplexy than to epileptiform convulsions, and are decidedly unfavourable to any theory of venous or arterial congestion that would explain the phenomena of convulsions. And the most recent writer on the physiology and pathology of convulsions, Dr C. B. Radcliffe (*Lancet*), tells us that "the clinical history of disease is opposed to the theories that would ascribe convulsion to a congested condition of the cerebral veins. In whooping-cough these veins are often congested in a very high degree during the paroxysm, and yet convulsion is only an accidental accompaniment of the paroxysm. In congestion of the lungs, also, these veins are greatly gorged with black blood; and the consequences of this engorgement are dreamy sleepiness, stupor, perhaps coma, rarely convulsion. Nor is the case different where extreme venous congestion is brought about by straining, or in any other way; for here the symptoms are coma and paralysis, not coma and convulsion, apoplexy, not epilepsy. Indeed, there is nothing in all this evidence, physiological or clinical, to nullify the conclusion already drawn, that venous blood has no special action in producing convulsion. *Convulsion is the sign of depressed and not of exalted vital action.*"

These arguments, then, are sufficient to show that convulsions do not depend on an increased determination of arterial blood to the brain, or an impeded ebbing of venous blood from that organ. It is vain to seek for the cause of convulsive movements in any determination of blood to the head; and, consequently, it is vain to resort to general bloodletting as a necessary expedient for the cure of any of these diseases.

The causes of convulsive disorders must be sought for in the excito-motor nervous centres; and more particularly in the medulla oblongata, for it is there that the principal reflex movements, whether normal or abnormal, originate.

According to Schroeder van der Kolk, the primary cause of convulsions consists in a superpolarity or exalted sensibility and activity of the ganglionic cells of the medulla oblongata, whereby they are rendered more liable to discharge themselves, on the application of any stimulus, in abnormal involuntary reflex movements.

Kussmaul and Tenner, who have devoted much attention to the subject, have come to the conclusion that the proximate cause of convulsions consists in a sudden interruption in the nutrition of the brain caused by a spasmodic contraction of the capillary blood-

vessels, whereby certain molecular alterations of the substance of the brain are produced, the metamorphosis of tissue disturbed, and those parts of the brain substance having the essential attributes necessary for a reflex act, brought into an exalted state giving rise to convulsive movements. This theory is not so much at variance with that of Schröder van der Kolk as would at first sight appear, for both agree in this, that the medulla oblongata is the nervous centre whence convulsions chiefly proceed, and that the ganglionic cells of that organ have undergone certain molecular changes, which place it in a highly exalted and excitable condition, or state of superpolarity. They differ, however, in this respect, that the former accounts for the phenomena of convulsions by a state of turgescence or *hyperæmia* of the excitable nervous centres, while the latter explains them by *anæmia*, or a low degree of vitality.

Without attempting to discuss these different theories, it is sufficient for our purpose to know that the real seat of puerperal convulsions is in the reflex nervous centres, and that there is no disorganization necessary, nor any great organic change in the tissues; but only an increased excitability or superpolarity of these centres, which is produced by some change in the chemical constitution of the blood, to which the condition of pregnancy in some way predisposes.

Dr Simpson, as far back as 1841, directed attention to the circumstance that albuminuria generally preceded, or was co-existent with puerperal convulsions; and it is extremely probable that this excretion of albumen, which is derived from the blood through the agency of the kidneys, and thrown off in such quantities, produces a change in the chemical composition of the blood that engenders a predisposition to convulsions, which only requires the application of some exciting cause to produce them. The mere predisposition is not alone sufficient to produce eclampsia; there must be the co-operation of the exciting cause,—such as temporary irritation of the mucous membranes, irritation of internal organs, psychical influences, toxic agents, atmospheric changes, and the like.

From these remarks, then, there is every reason to believe that the phenomena of convulsions arise mainly from some molecular change of the reflex nervous centres, caused by the quantity or the composition of the blood that circulates in these centres, and not from any excessive venous or arterial congestion; and that, as regards treatment, our main reliance must be upon anæsthetics and blood-formative substances, rather than on those agents which depress vital action, such as general bloodletting.

Let us remark, however, in conclusion, that although there is nothing in the pathology of convulsive disorders that would indicate bloodletting either as a preventive or as a means of cure, yet it is possible that the cerebral veins may become so much distended with dark blood, that there may be a tendency to apoplexy, or that the nutrition of the brain may be suddenly arrested in consequence

of the impossibility of ærated blood being introduced through the arteries: in these cases, and under these circumstances alone, would we consider general bloodletting, as practised for puerperal convulsions, likely to have any beneficial effect.

BUNESSAN, OBAN.

ARTICLE V.—*On the Characters, Actions, and Therapeutical Uses of the Ordeal Bean of Calabar* (*Physostigma venenosum*, Balfour).
By THOMAS R. FRASER, M.D., Assistant to the Professor of Materia Medica, Edinburgh University; late Resident Physician, Royal Infirmary, Edinburgh.

(Concluded from page 132.)

SECTION V.—APPENDIX.

Experiments with the KERNEL of Physostigma venenosum on the Lower Animals.

A. Illustrating the Constitutional Effects.

I. INTRODUCED THROUGH THE CELLULAR TISSUE.

EXPERIMENT 1.—A subcutaneous cavity was formed in the right flank of a full-grown white rabbit, and into this six grains of powdered kernel, made into an emulsion with half a drachm of water, were introduced.

No effect was produced for four minutes, when the posterior extremities began to drag. In another minute they were completely paralyzed, and almost immediately afterwards the anterior extremities yielded, and the rabbit lay stretched on the table. Fæces were passed, and a tremor commenced in the muscles of the neck. In eight minutes, the rabbit was lifted by the ears, and did not attempt to struggle, while the extremities hung down in a loose and flaccid manner. It remained on its side, or in almost any position into which it was arranged.

In twelve minutes, a few unsuccessful efforts were made to resume the normal position. The pupils were distinctly contracted. Muscular twitches succeeded each other over the whole body, but especially proceeding from the lower extremities, along the trunk to the neck. The respirations became noisy, and the inspiration was frequently accompanied with a general convulsive movement of the whole body. In fourteen minutes, the pupils were extremely contracted and immobile. The eyelids did not close on irritation of the conjunctiva. Respiratory movements became almost imperceptible. Irritation of the skin induced no reflex movement. The respirations were superseded by distinctly recurring spasmodic movements of the muscles of the thorax and abdomen, and, in seventeen minutes after the administration, these had entirely ceased.

Autopsy—immediate.—The heart was found contracting sixty times per minute in a regular and rhythmical manner. The contractions continued, with perfect regularity, for fifteen minutes; the number then decreased till, at twenty minutes after death, they were forty per minute. In thirty minutes, the proper rhythm was lost, the left auricle first losing its contractility, then the right and left ventricles, and next forty minutes after death the right auricles. Irritation could produce contractions for fifteen minutes longer, or fifty-five minutes after death, and seventy-one minutes after the administration.

The large veins in the thorax were distended, and vermicular movements were distinctly evident in the intestines. The surface of the brain appeared injected with dark blood. No abnormality was detected in the spinal cord.

Irritation of the phrenic and sciatic nerves produced a slight contraction of the diaphragm and muscles of the thigh. The lungs, liver, and kidneys were congested. The vessels of the abdomen were full of dark blood. On incising the heart, the right chambers were found to contain dark coagulated blood; in the left side a small quantity of blood of the same colour was seen. Frothy fluid was found in the pharynx and upper part of the larynx, but none in either the trachea or œsophagus. The whole digestive tract was examined, but nothing abnormal was seen. The stomach contained a semifluid material, and the lower part of the intestines was empty for a considerable distance above the rectum.

EXPERIMENT 2.—Seven grains of finely powdered kernel were made into an emulsion with one drachm of distilled water, and secured in a space in the subcutaneous cellular tissue of the left flank of a full-grown rabbit.

A few struggles occurred during the introduction, but these only lasted a few seconds, after which the rabbit became quite quiet. The first indication of any effect was shown by the animal stretching itself on the table, about four minutes after the introduction, the anterior extremities being extended forwards, and the posterior backwards. Immediately afterwards, a number of successive twitches occurred in the extremities, and the rabbit remained passively on its side. The muscular twitches soon extended to the neck, causing irregular movements of the head. In six minutes, the respirations became noisy, and evidently laboured, the inspirations being accompanied by movements of the extremities and trunk. The pupils were contracted, but mobile, and the eyelids closed on irritation. Sudden noise produced a distinct start.

In twelve minutes the pupils were contracted to the tenth of an inch. The inspirations became very laboured, and noisy, and frequent, but slight muscular spasms occurred. Glairy fluid escaped from the mouth, and tears from the eyes. In fifteen minutes, irritation of the conjunctiva did not produce contraction of the eyelids. The pupils were mere points. Reflex action could be caused to a very slight degree by some irritation of the extremities. The respirations occurred at very distinct intervals, and muscular spasms accompanied the inspirations. In sixteen minutes, respiration had almost entirely ceased, and had certainly done so in seventeen.

Autopsy—immediate.—The heart was found contracting with regularity, seventy per minute. This spontaneous action continued for twenty-five minutes, gradually, however, diminishing in strength and in the number of pulsations. Contraction of the heart could be renewed by gentle irritation for seventy minutes.

The brain and other organs had the appearances already described, with the exception of the lungs, which were peculiarly engorged, and presented the conditions of pneumonic condensation in the anterior portion of the inferior left lobe, and in nearly all the small middle lobe, and these portions sunk in water. The back of the tongue and all the veins of the thorax and abdomen were injected. Very little muscular irritation could be produced by stimulation, whether direct or through the nerves. The right side of the heart was distended with venous blood; the left was nearly empty, but contained blood of a dark hue.

EXPERIMENT 3.—The skin was raised in the left flank of a large black and white female cat, the needle point of Wood's hypodermic syringe was inserted into the subcutaneous cellular tissue, and ten minims of a syrupy extract injected.

In two minutes, trembling occurred, and in three the cat fell. Fluid escaped from the mouth, the pupils contracted, and urine was voided. In five minutes, the respirations became hurried, noisy, and laboured. Reflex action could not be excited by severe stimulation, nor did the eyelids contract on irritation of the conjunctiva. The animal became perfectly flaccid; the only symptom of life was an occasional gasp, and this ceased entirely seven minutes after the administration.

Autopsy—immediate.—The pupils were observed to dilate. A very few contractions occurred in the muscles which were cut. The heart was perfectly quiet, and without the slightest action. No contraction could be produced by irritation of the phrenic and sciatic nerves. The stomach and intestines were full, and no vermicular action could be detected though carefully looked for. The brain appeared perfectly natural, the vessels being full without any engorgement, and no peculiarity was observed in the spinal cord. On removing the pericardium, irregular movements occurred in the heart, and a partial contraction could be produced by irritation fifteen minutes after death. The vessels of the thorax and abdomen were well filled, and could be readily distinguished by the colour of their contents. On incising the left ventricle, blood of the usual arterial hue escaped, and on incising the right, dark blood appeared. Both were allowed to run side by side, when the contrast was distinctly shown. The lungs, liver, spleen, and kidneys were normal. No change could be perceived in the mucous coat of the intestines. The gall-bladder was full.

The region of injection was found to be limited to the subcutaneous cellular tissue. It was of a red colour, and the characteristic odour of the extract was readily recognised.

II. INTRODUCED BY THE SEROUS TISSUE.

EXPERIMENT 4.—Five minims of syrupy extract were injected by Wood's hypodermic syringe into the cavity of the peritoneum of a rabbit five months old. Unsteadiness was produced in one minute, especially of the posterior extremities, which soon dragged powerless behind the animal. The anterior extremities were completely paralyzed in three minutes. At this time the pupils were contracted, the respirations were noisy, and fluid escaped from the mouth. Reflex excitability was completely lost in four minutes; and in four and a half minutes after the administration, all respiratory movements had ceased.

Autopsy—immediate.—Heart passive; contractions were excited by irritation and continued for seven minutes. Brain natural; spinal cord apparently healthy. Incision of the heart permitted blood to flow from both sides of the characteristic hues. The arterial and venous systems were normal, and their vessels full, with a little distention of the veins of the thorax. Stomach and intestines full. Bladder distended. Other organs normal. Nervous irritation produced a slight contraction of the diaphragm and muscles of the thigh. Pupils completely dilated. No inflammatory appearance could be detected in the peritoneum, but the odour of the extract was very evident.

EXPERIMENT 5.—The abdominal wall in a young rabbit of six months was cut through, and the peritoneum exposed. Four minims of the syrupy extract were injected into the peritoneal sac. The respirations were seventy-two per minute immediately before the operation.

In one minute, the respirations were eighty. In two minutes, the rabbit became unsteady. The pupils were very small, and the eyelids closed on irritation. Fluid escaped from the mouth. In four minutes, the respirations were laboured, noisy, and only thirty per minute. The animal soon fell down, a few kicks occurred, and in five minutes it submitted to be laid in any position. Objects which were brought close to the eye produced no change in the position of the head, but a sudden noise caused a start. In six minutes, the eyelids could not be made to contract. A few muscular twitches, involving at once the muscles of the extremities, abdomen, thorax, and neck, succeeded each other. These were accompanied with feeble gasps, which gradually became weaker, and ceased entirely in seven minutes after the administration.

Autopsy—immediate.—The cut muscles contracted. The heart was acting regularly, seventy-eight per minute. This diminished gradually, but the spontaneous contraction of the right auricle continued till an hour and six minutes after death, while the contractility, as produced by physical impressions, did not cease until thirty minutes later. The vessels in the thorax and abdomen

were distended. The brain was found injected with dark blood, and the vessels at the base of the cerebellum, and on the sides of the medulla oblongata, were full of venous blood. Vermicular action was well marked in the small intestines. The bladder, stomach, and gall-bladder were distended.

The lungs were dark and congested in various portions, but these did not sink in water. The right side of the heart was distended with dark blood, and a small quantity of the same colour was found in the left side.

No inflammatory change could be detected on the surface of the peritoneum. A frothy fluid was found in the fauces and upper portion of the larynx.

EXPERIMENT 6.—Two minims of the syrupy extract were injected into the left pleura of a kitten nine weeks old.

Almost immediately after, the respirations become noisy and hurried, and in one minute the animal fell down. The pupils rapidly contracted, and in three minutes the eyelids were not affected by irritation. The respirations became very infrequent, and ceased three and a half minutes after the administration.

Autopsy—immediate.—The pupils were observed to have again dilated before the cavity of the chest could be exposed. The heart was passive, and evidently distended; irritation could excite contractions for eleven minutes. On incision, the two sides were found to contain blood differing normally in colour. The viscera generally were healthy. The brain contained no unusual amount of blood, and the spinal cord was marked with a few injected points. The region of injection was confined to the pleural cavity, and had a red tinge, and a distinct odour of the extract.

III. INTRODUCED THROUGH THE DIGESTIVE SYSTEM.

EXPERIMENT 7.—Two grains of the extract, prepared as formerly mentioned, were formed into a small pill, with a little bread crumb. This was placed in the back of the pharynx of a full-grown, strong, and well-fed English terrier, and was observed to be swallowed.

No effect was produced for nine minutes, when fluid escaped from the mouth; the tongue was protruded and moved as if lapping; eructations were heard; and the gait became unsteady.

In twelve minutes, there was decided paralysis in the posterior extremities, and the respirations were hurried. Vomiting of a mucous substance, the passage of soft faeces, and a copious discharge of urine occurred simultaneously in seventeen minutes. The animal soon after fell on its haunches, and in a short time the anterior extremities became paralyzed, and it lay extended on its thorax and abdomen. When called by name, the head was turned. Common sensation and sight were unaffected. In twenty-five minutes, the pupils were considerably contracted, and at this time general muscular twitches occurred. In thirty-six minutes the dog again vomited a mucous and somewhat bilious-looking substance. This appeared to give some relief, as the animal rose up immediately, but, after standing in a very shaky manner for a few seconds, it again fell down. In forty minutes, vomiting recurred, and was followed by an unsuccessful effort to stand. The respiratory movements became feeble, and were attended by a loud stertor, in forty-three minutes. The dog remained in any position. Muscular spasms became frequent; urine was voided, and extremely liquid faeces passed. The head was still turned when the dog was named, and distinct evidence of pain followed irritation. In forty-six minutes, the eyelids did not contract on irritation of the conjunctiva; and in fifty minutes after the administration all respiratory movements had ceased.

Autopsy—immediate.—The cut muscles contracted vigorously. The heart was found acting regularly, eighty-six per minute. It retained this spontaneous action for seventeen minutes, and contractions could be excited till forty minutes after death. The vessels of the thorax were distended with black blood, and this was distinctly perceptible in the aorta. The vermicular action of the intestines was very evident, and continued for ten minutes. The substance of the brain was injected with dark blood; its external surface was

covered with vessels containing black blood, and a quantity of serum escaped when it was exposed. No change was detected in the medulla oblongata or spinalis. The lungs were dark and congested in various places. They floated in water; but when one particularly engorged portion was detached, it was found to sink in water. The liver, kidneys, and spleen were very much engorged. No change could be detected in the mucous membrane of the digestive system. The stomach was empty, and the large intestines for a considerable distance above the rectum were also empty. Frothy mucous was found in the pharynx and larynx. Irritation of the phrenic and sciatic did not produce contractions in the diaphragm and muscles of the thigh.

EXPERIMENT 8.—Five and a half grains of the fine powder of the kernel were made into pills, and swallowed by a buck rabbit eight months old.

A slight degree of paralysis was seen in the posterior regions in ten minutes, and, soon after, they yielded, the anterior portion of the trunk remaining supported by the fore-limbs.

In fifteen minutes, the fore-legs gave way. Fæces were passed. In twenty minutes, the respirations became noisy, reflex action was unimpaired, and the pupils contracted. In thirty minutes, the rabbit submitted to be placed in any position. In thirty-five minutes, the respirations became extremely noisy and accompanied with muscular spasm. Fæces and urine were passed, and reflex action could not be induced by puncturing the skin. General, but slight, muscular spasms now occurred frequently; the eyelids did not contract when the eyeball was pricked, and the respiratory stertor ceased. In forty minutes, a general spasmodic contraction of the muscles occurred; and, in forty-one minutes, all respiratory movement had ceased.

Autopsy—immediate.—The cut muscles contracted. The heart was acting seventy-two per minute, and this ratio gradually diminished till it ceased, thirteen minutes after death. The brain was rather darker than usual, and no change could be perceived in the spinal cord. The cerebro-spinal fluid was in abnormal abundance. The large veins were distended. The right chambers of the heart were engorged with black blood; the left ventricle was empty, but a little black blood was found in the left auricle. A considerable quantity of fluid was present in the abdomen, and the vermicular action of the intestines was well marked. All the viscera contained an abnormal excess of blood of a dark colour. The muscular system was extremely flaccid, but contractions could be caused by irritation of the nerves.

Remarks.—This experiment formed one of a series undertaken to discover the smallest dose which could produce death in a full-grown rabbit. A number of rabbits, as nearly as possible equal in age and weight, were selected, and a series of doses was given, commencing with four grains, and increasing at the rate of a quarter of a grain. Five and a half grains, as in the present instance, was the smallest quantity of the kernel which produced death.

EXPERIMENT 9.—Ten grains of a very fine powder of the kernel were suspended in two drachms of distilled water, and injected into the rectum of a full-grown rabbit. (The rectum had been previously emptied by injecting warm water.)

The first symptom observed was contraction of the pupils, five minutes after the administration. About the same time, the rabbit appeared languid, and in ten minutes fell, and remained in any position. In twelve minutes, the eyeball was touched, without closure of the eyelids, and no symptoms of pain followed severe pricking of the trunk or extremities. Fluid escaped from the mouth, and the respirations became very noisy, laboured, and accompanied by spasmodic actions of the extremities, trunk, and head. The respirations gradually became weaker, and ceased entirely in twenty minutes.

Autopsy—immediate.—The heart was found contracting fifty-two per minute. This action gradually diminished, and spontaneous contraction ceased in the right auricle, fourteen minutes after death. In five minutes, the contractions were forty-four; in ten minutes, fifteen; and in twelve minutes, four. Irritation could produce contractions one hour longer, or seventy-four minutes after

death. Both chambers of the heart contained black blood. Vermicular movements were observed in the intestines, *only at the upper portion*. The brain and other organs were enlarged with venous blood.

EXPERIMENT 10.—A small quantity of syrupy extract, sufficient to cover the extreme point of a penknife, was placed on the back part of the tongue of a sparrow. The bird was immediately set free, and allowed to fly in a room.

In two minutes it had alighted, and gasping movements of the jaws were observed. With this exception, nothing occurred for fifteen minutes, when a gelatinous-looking substance was vomited. The legs soon failed, and, after flying about for a few seconds, the bird fell on the right side. In fifteen minutes, the respirations were very irregular, and accompanied by spasmodic contractions of the wings and legs. In twenty minutes, one such of unusual severity occurred, after which no respiratory movement took place.

Autopsy—immediate.—The heart was contracting ninety per minute, and continued to act for eighteen minutes. Its cavities contained dark blood. The veins of the thorax and abdomen were injected.

EXPERIMENT 11.—About twice the quantity of extract that was employed in the previous experiment was applied to the tongue of a sparrow. The bird was liberated, and flew away.

In one minute the wings were evidently paralyzed to a slight extent, and in two minutes ineffectual attempts were made to fly. The respirations became hurried, and in four minutes the bird fell on its side and vomited. A slight muscular spasm, or rather a feeble tremor, occurred; and, in five and a half minutes, respiration had entirely ceased.

Autopsy—immediate.—The heart had ceased to contract, and no action could be produced by irritation with the point of a scalpel. Its chambers were distended, and contained blood of normally different colours. No muscular contraction could be produced by irritation of the phrenic and sciatic nerves.

Remarks.—Experiments 10 and 11 were repeated with the like results, except that in Experiment 10 *a*, opisthotonos occurred.

EXPERIMENT 12.—Five minims of tincture of physostigma, mixed with a little water, were poured into the throat of a full-grown sea-gull.

No effect was produced for four minutes, when, in rapid succession, the bird trembled violently, subsided on the thorax and abdomen, fell on its side, and, after a few irregular gasps, ceased to respire, four and a half minutes after the administration.

Autopsy—immediate.—The heart contracted very feebly and slowly for two minutes. Irritation could produce a slight contraction for twenty-two minutes after death. The heart's chambers contained blood differing normally in colour. The right side of the heart and the large veins were distended.

IV. INTRODUCED BY THE CIRCULATORY SYSTEM.

EXPERIMENT 13.—Five minims of a syrupy extract was injected into the left femoral vein of a full-grown rabbit, in a direction *from* the heart, or centrifugally. The rabbit almost immediately fell, and remained quite motionless, excepting a few occasional kicks with the posterior extremities.

In thirty seconds, the eyelids did not close on irritation, and reflex action could not be produced. Respirations ceased in forty-two seconds after the administration.

Autopsy—immediate.—Heart distended and passive. Colour of contained blood, normal. Vermicular action could not be discovered in the intestines.

V. INTRODUCED BY THE RESPIRATORY SYSTEM.¹

EXPERIMENT 14.—Five minims of syrupy extract were injected into the

¹ The results obtained under this section were those following introduction through a variety of channels. Excepting one experiment, the method followed was forcibly to puncture the thoracic wall and the pleura with the needle point of Wood's syringe, and through this to inject a syrupy extract. In this way, however, a passage was afforded for the poison to enter the system, not only through the respiratory, but also through the circulatory apparatus.

right thorax of a young rabbit, by means of Wood's hypodermic syringe. This was done in such a manner that the pleura was punctured, and the pulmonary structure reached.

The rabbit was perfectly quiet for seventy-five seconds, when it endeavoured to jump away and stumbled. In one minute and a half the fore-legs yielded, and the animal fell; and, immediately afterwards, the posterior extremities were paralyzed, and it lay extended in a flaccid condition. The pupils became contracted. Irritation of the eyelids or eyeball did not produce closure of the eye. A few jerks occurred in the hind-limbs. General muscular quivering accompanied, and could scarcely be distinguished from, the respiratory movements, and these ceased in two minutes after the administration.

Autopsy—immediate.—The heart was passive, distended, and contained red blood in the left chambers, and dark blood in the right. The vermicular action of the intestines was very slight. Feeble contractions followed irritation of the phrenic and sciatic nerves. The other various organs and viscera were normal.

EXPERIMENT 15.—The trachea of a full-grown rabbit was exposed, and cut open a short way above the sternum. Five minims of syrupy extract were allowed to run down the trachea towards the lungs, in a gentle stream, from the needle point of Wood's syringe.

As soon as the rabbit was liberated, it ran a few steps, then stumbled, and, in forty-two seconds, fell down. The pupils contracted, and irritation of the eyeball did not produce winking. A few gasps and slight muscular tremors occurred, and in two minutes all respiratory movement had ceased.

Autopsy—immediate.—The heart was passive. Irritation could produce a slight, wavy, muscular action for ten minutes. When incised, black blood was found in the right side, and scarlet in the left. The vermicular action of the intestines was extremely indistinct. The stomach and bladder were distended. The arterial and venous systems appeared normal, and their vessels filled without distention.

No inflammatory change was discovered in the trachea or bronchi, but a distinct odour of the extract could be perceived over a great portion of both lungs. There was no congestion of the pulmonary texture.

VI. INTRODUCED BY THE NERVOUS SYSTEM.

EXPERIMENT 16.—The cranium of a full-grown guinea-pig was exposed, and, from the internal portions of both parietal bones, small portions of bone were removed with scissors. The exposed dura mater was cut through, the surface of the brain uncovered, and a horizontal slice removed with a sharp knife. A considerable amount of bleeding occurred, which was controlled by the application of cold. No nervous phenomena followed this operation. Fifteen minutes afterwards, six minims of syrupy extract were placed on the comparatively clean surface of the brain.

The first symptom observed was paralysis of the posterior extremities; in twelve minutes, they began to spread, the guinea-pig being still active. In fifteen minutes, a quantity of greenish, grumous-looking matter issued from the mouth, which was afterwards examined microscopically, and found to be similar to a substance found in the stomach. This was accompanied by a condition of tension of the abdominal parieties, and a drawing together of the limbs, giving the idea of straining. In twenty minutes, fæces were passed, and, shortly after, urine was voided. Hearing and sight were unaffected, and the contraction of the pupils very slight.

The paralysis of the extremities became gradually greater, and in one hour the guinea-pig could employ only the fore-limbs, and stagger from one place to another. Fæces and urine were passed at intervals, the former being almost liquid. A discharge took place from the eyes of a milky fluid. The respirations were noisy and laboured, and accompanied by a distinct spasm of the extremities.

In one hour and fifteen minutes, pinching produced cries of distress, but no

reflex movements. In one hour and thirty minutes, the posterior extremities had yielded, and the animal was supported on the pelvis and anterior extremities. Severe spasms occurred twice, during which the animal fell on the side, but immediately recovered itself.

The respirations were at this time very laboured. From this stage the symptoms diminished, and in two hours the animal could walk about, and the diarrhoea had ceased.

Eight hours afterwards the guinea-pig was found dead.

Autopsy.—Ten hours after the administration.

Great serous congestion in the chest. Right and left sides of the heart contained dark and partially coagulated blood. Lungs congested; two small portions sank in water. A quantity of frothy mucus was found in the pharynx and covering the rima glottidis. Brain congested, and distinct signs of inflammation in the immediate neighbourhood of the injured portion. No odour of the extract was perceived. The spinal cord was very slightly congested in its cortical substance. The organs generally were dark and congested, and the vessels contained loosely coagulated blood.

Remarks.—This experiment does not show that death was produced by application to the *nerve-substance*, for these results may have been caused by the absorption of the extract by the cut and exposed bloodvessels.

B. Illustrating the Topical Effects.

I. WHEN APPLIED TO MUSCULAR TISSUE.

EXPERIMENT 17.—A full-grown buck rabbit was rendered unconscious by chloroform, and the biceps muscle of the right anterior extremity exposed, and carefully dissected from the surrounding structures, its origin and insertion being untouched. All the soft structures of the limb (except the biceps) were dissected from the humerus, and a ligature was tightly applied at the upper portion of this mass, and a second at the lower. The intermediate portion was cut away. A little thin gutta-percha parchment was then used to isolate the biceps as much as possible. The exposed muscle quivered in successive portions after being exposed.

The musculo-cutaneous nerve was pinched with forceps, the biceps contracted, and the elbow was flexed. The biceps was then painted over with the syrupy extract. In four minutes, all quivering of the muscular bundles had ceased, and, in eight minutes, irritation of the nerve-extremity, or of the muscular substance by pinching, pricking, and the action of the alkalies, acids, and a hot wire, produced no effect. The opposite leg was at this time thrown into energetic action by moderate irritation. The animal died in thirty minutes, with symptoms and appearances of death by asphyxia.

II. WHEN APPLIED TO NERVE SUBSTANCE.

EXPERIMENT 18.—The great sciatic nerve was exposed in its course from the pelvis to the knee in a large frog. A small portion, about the fourth of an inch, was separated from the surrounding tissues by gutta-percha parchment. It was found that muscular contraction could be produced by irritation of the nerve in any part of its course. The exposed portion was then painted over with the syrupy extract.

In twelve minutes, an irritant applied to the nerve *above* the isolated portion produced no muscular contraction, while a similar irritant applied *below* this portion was followed by contraction. The frog died in thirty minutes, probably because of the extract escaping from the edges of the isolating material into the surrounding structures.

III. WHEN APPLIED TO THE HEART.

EXPERIMENT 19.—The spinous processes and laminae of the first two cervical vertebrae were exposed in a young rabbit. By bending the neck forwards, a sufficient space was obtained between the first and second vertebrae to admit a

small probe. This was passed into the spinal canal, about a quarter of an inch upwards and downwards: the respiratory centre was thus destroyed, and the animal instantly killed.

The chest was opened, and the heart was found beating slowly and irregularly. In four minutes afterwards, when the cardiac action had regained its proper rhythm, five minims of the syrupy extract were injected into the right auricle, through the muscular wall, by Wood's syringe. The action of the heart instantly ceased. Irritation could, however, produce a laboured contraction for ten minutes. No blood escaped when the needle point was withdrawn. The heart's chambers were incised, and found filled with blood of different colours.

EXPERIMENT 20.—A young rabbit, five months old, was killed as described in Experiment 19, and the heart exposed. In four minutes the contractions were eighty per minute, and at this time the entire cardiac surface was painted with the syrupy extract. In one minute, the contractions had entirely ceased; but, half a minute afterwards, the left ventricle spontaneously resumed its action, and, in two minutes after the application, the whole heart was contracting at the rate of seventy-six per minute.

The application was thrice repeated with similar results, a longer interval occurring latterly between the suspension and recovery of the cardiac contractility.

Remarks.—These experiments were repeated on frogs, with the heart removed from the body and empty, and the results were the same.

IV. WHEN APPLIED TO THE ALIMENTARY CANAL.

EXPERIMENT 21.—The vermicular action of the intestines was very active in the rabbit employed for Experiment 19, and could be increased by direct stimulation of the gut. A portion of the small intestine, about two inches long, was separated from the mesentery, and isolated with gutta-percha parchment. This was covered with syrupy extract by a camel's-hair brush.

The vermicular action immediately ceased in the separated portion, and it became evidently flaccid. Irritation produced no effect. It was distinctly observed that, when a contraction ran along the intestine towards this portion, it stopped at the margin where the extract had been applied, appeared to *skip over* it, and was resumed at the other extremity of the healthy intestine. The power of contraction was not recovered by the painted portion. This experiment has been frequently repeated with the same result.

V. WHEN APPLIED TO THE SKIN.

EXPERIMENT 22.—A Corrigan's cautery was placed in boiling water for twenty minutes, and immediately applied to the cutis—previously shaved—at the right flank of a full-grown rabbit. It was kept in contact for six minutes. Four hours afterwards a blister had formed, and, by removing the cuticle, the dermis was exposed. This was covered with twelve minims of syrupy extract. The rabbit was secured in such a manner that this extract could not be removed. It was examined, at various intervals, for four hours without any change being observed. The rabbit continued in perfect health for two days, when it was employed in another experiment.

EXPERIMENT 23.—(a) A little syrupy extract was painted over the whole length of a large earthworm. It immediately began to wriggle in the dish where it had been placed. In six minutes, progression had ceased, the only movement being a waving motion of one end. This ceased in ten minutes, slimy mucus was voided, and the worm lay contracted and swollen. Reflex excitability was also lost, and in fifteen minutes the worm was dead.

(b) A large earthworm was painted, on the posterior half, with the syrupy extract. It wriggled about for a short time, the movement being equally shared by all parts. In six minutes, the posterior half, or painted portion, was nearly motionless, and in ten minutes it was perfectly passive and contracted. The anterior half continued active for five minutes longer, and was quite passive in seventeen minutes after the application.

(c) The anterior half of a large earthworm was painted with the syrupy extract. In five minutes, an evident diminution had occurred in the movements of this part. In ten minutes, it was perfectly motionless.

The posterior half was not completely paralyzed for thirty-five minutes.

VI. WHEN APPLIED TO MUCOUS MEMBRANES.

(a) *Nasal*.—EXPERIMENT 24.—A fine camel's-hair brush, dipped in the syrupy extract, was passed thrice into the left nostril of a full-grown rabbit, care being taken that the brush should not convey a sufficient quantity to allow any to escape into the pharynx. In four minutes, a copious mucous discharge flowed from both nostrils, but in larger quantity from the left. In six minutes, the pupils were contracted. In ten minutes, the rabbit fell down, and remained in any position given to it. The respiration was noisy. It was dead in twenty minutes after the application.

In the examination, the phenomena already detailed, as resulting from death by asphyxia, were seen. The whole mucous membrane of the left nostril was red and tumefied. No abnormal appearance was formed in the right nostril.

(b) *Auditory Membrane*.—Death was also produced by asphyxia, by injecting into the auditory canal of a rabbit and of a mongrel dog ten minims of the syrupy extract. The same result was produced by an infusion of eight grains of the kernel in four drachms of water.

(c) *Conjunctiva*.—See EXPERIMENT 25.

VII. WHEN APPLIED TO THE EYE.

EXPERIMENT 25.—The left eyeball of a full-grown rabbit was painted over with syrupy extract. This appeared to cause no uneasiness until two minutes, when the lachrymal secretion escaped in considerable quantity, and the eyelids were semi-closed.

In three minutes, the left pupil was distinctly contracted, and in five minutes it was reduced to the one-sixth of an inch. In fifteen minutes, the contraction was extreme, but the iris was mobile. No change was observed in the right pupil. A large quantity of very liquid feces was passed and urine freely voided. In twenty minutes, a slight degree of contraction could be perceived in the right pupil, but this did not increase. No distinct evidences were seen of muscular paralysis. When lifted by the ears, the rabbit struggled violently. *It was observed, that during these struggles the contraction of the left pupil was diminished and the right became slightly dilated.* In forty-five minutes, liquid feces was again passed, and afterwards the contraction of the left pupil was the only remaining symptom. This diminished in two hours, but it continued very apparent for eight hours, and had disappeared in ten hours after the application. The rabbit recovered completely.

In another experiment, in which a larger quantity of extract was employed, the muscular prostration was more marked, and the contraction of the pupil continued for twenty-four hours.

C. Modified Actions.

I. WITH BOILED KERNEL.

EXPERIMENT 26.—Twenty grains of powdered kernel were boiled for two hours with distilled water, and placed in a cavity in the subcutaneous cellular texture of a rabbit. A few struggles followed the introduction; the breathing became rapid; and the rabbit fell down in four minutes. The pupils contracted; very feeble struggles occurred when the rabbit was lifted; and it remained in any position. In six minutes, the reflex function of the eyelids was lost, and in seven the respirations had ceased.

Autopsy—immediate.—The pupil dilated during the opening of the chest. The heart was found passive and distended. All its chambers contained blood, and the difference in colour between the right and left sides was strongly

marked. The vermicular action of the intestines was very feeble. The sciatic and phrenic nerves were pricked without any effect. No congestion was seen of any viscus. The mesenteric arteries and veins were distinctly different in colour. The abdominal aorta and venæ cavæ contained blood of normal colours. The stomach and bladder were full. Rigor mortis began in one hour. No redness nor any other morbid appearance was found in the region of application.

II. WITH THE BEAN BOILED ENTIRE.

EXPERIMENT 27.—An entire bean, weighing seventy-two grains, was boiled in distilled water for four hours. The kernel was then separated from the spermoderm, and found to be of a brownish colour. One cotyledon, weighing probably twenty-eight grains (the other having been dried and found to be of this weight), was made into an emulsion, and introduced into the right flank of a full-grown rabbit.

No effects were observed till twenty minutes, when the rabbit began to move its jaws, and to grind its teeth as in chewing. In fifty minutes fluid fæces were passed, and in an hour the pupils were slightly contracted. Very fluid fæces and urine were now frequently, almost incessantly, voided for two hours longer, when these symptoms diminished, and entirely disappeared in five hours after the administration. No effects remained six hours afterwards.

III. WITH STRYCHNIA AND PHYSOSTIGMA.

EXPERIMENT 28.—Three-tenths of a grain of strychnia were sprinkled on a recent wound in the left flank of a mongrel dog. The animal stumbled and fell in four minutes, and the muscles of the extremities and trunk became rigid. In five minutes, the pupils were dilated, and spasms rapidly succeeded each other.

Five minims of syrupy extract were injected into the subcutaneous cellular texture of the wounded flank (left), near the place of the application of the strychnia.

Almost immediately afterwards the spasms ceased in the left limb, and in a short time in the right also. In three minutes after this injection, reflex action could not be excited in the posterior extremities. The pupils remained dilated, and clonic spasms frequently recurred in the anterior extremities and trunk. In seven minutes, the eyelids closed, and, when opened, the pupils were found pointing upwards and outwards. No muscular action recurred in the posterior extremities, but slight spasms were observed in all other regions. The animal died twenty minutes after the administration of strychnia.

Autopsy—immediate.—On opening the thorax several bloodvessels were cut, and very dark blood escaped. The cut muscles contracted vigorously. The heart was acting with regularity and force. The vessels of the thorax were injected with dark blood. Irritation of the phrenic nerves produced contraction of the diaphragm, but no action could be caused by pinching the great sciatic on either side.

IV. WITH ARTIFICIAL RESPIRATION.

EXPERIMENT 29.—Five minims of syrupy extract were injected into the cellular tissue in the left flank of a kitten one month old. Artificial respiration was performed for fifteen minutes. This did not appear in the slightest degree to modify the action. The animal was flaccid in three minutes, and the pupils contracted. On exposing the heart, it was found passive and distended.

Experiments with the KERNEL of the Physostigma venenosum on Man.

A. Illustrating the Constitutional Effects.

EXPERIMENT 1.—I ate six grains of finely-powdered kernel, two hours after taking food. The pulse had been examined at different times, within the previous fifteen minutes, and found to average 68 per minute.

In six minutes, the pulse was 74 per min., and no sensation of other symptoms were experienced. In nineteen minutes, the pulse was 72, and a slight degree of a peculiar sensation was experienced at the epigastrium. In fifteen minutes, the pulse was 76. In twenty minutes, the pulse was 75. Epigastric sensation more marked. In twenty-five minutes, the pulse was 77. In thirty minutes, the pulse was 72. Sensation continues to occur at intervals, but still slight. In thirty-five minutes, the pulse was 69. In forty minutes, the pulse was 66. Epigastric sensation recurred. In forty-five minutes, the pulse was 68. In fifty minutes, the pulse was 64. A slight degree of giddiness. The epigastric sensation is much increased. It now resembles the somewhat painful sensation which is produced when large pieces of food are suddenly swallowed, and recurs at intervals. It is at first slightly indicated by a sensation in the thorax, near the upper part of the sternum. This extends downwards, becoming more and more intense, until it reaches the epigastrium, when it is almost painful, and eructation usually occurs. There is a distinct escape of gas, and this is followed by a reversal of the direction of the pain from the lower sternum to the throat, so that eructation occurs in the middle of this sensation. The sensation or the eructation may take place independently of each other, and each at times is very slight. In fifty-five minutes, the pulse was 65; full and regular. Frequent renewal of the sensation and eructation. In sixty minutes, the pulse was 62; rather feeble. Dimness of vision and dizziness. In sixty-five minutes, the pulse was 62. Increase of head symptoms, with a little perspiration. In seventy minutes, the pulse was 60; very small and wiry, but regular. Nausea. No recurrence of the epigastric sensation since fifty minutes. In seventy-five minutes, the pulse was 62. Copious perspiration all over the body. Unable to continue reading, especially because of the dizziness. Experienced slight difficulty in walking. In eighty minutes, the pulse was 60; very thready and difficult to count. In eighty-five minutes, the pulse was 60. In ninety minutes, the pulse was 58. Respiration accompanied with a little difficulty, and with a slight degree of dyspnoea. In ninety-five minutes, the pulse was 59; very feeble, and with occasional intermissions. In one hundred minutes, the pulse was 56. Eructation without the epigastric sensation. Considerable nausea and dizziness. In one hundred and five minutes, the pulse was 56; thready and intermittent. In one hundred and ten minutes, the pulse was 58. Head symptoms greatly diminished. Dizziness and nausea lessened. Great difficulty in walking. Respirations require an effort. In two hours, the pulse was 60. In two hours and five minutes, the pulse was 59. In two hours and ten minutes, the pulse was 60; rather fuller. In two hours and twenty minutes, the pulse was 58. Felt sick, and accordingly lay down in bed. Was conscious of having remained awake for some time in a dreamy state. Next morning, felt uncomfortable, had a bad appetite, and experienced a slight degree of dizziness during the day.

EXPERIMENT 2.—Three calculations of the pulse, within fifteen minutes, gave an average of 74 beats per minute. Eight grains of the powdered kernel were then carefully chewed and swallowed.

In three minutes, the pulse was 76. In five minutes, the pulse was 70, and the epigastric sensation, accompanied with eructation, occurred. In ten minutes, the pulse was 72. In fifteen minutes, the pulse was 66, with slight sensations in epigastrium. In twenty minutes, the pulse was 66. Sensations more intense, and accompanied with eructation. It was supposed that a degree of muscular weakness was experienced, and this was tested with a dumb-bell, which in ordinary circumstances could be readily lifted. It was found a great burden, and I experienced the greatest difficulty in extending my arm with it. While going through this little exercise, a steady erect posture was with difficulty maintained. In thirty minutes, the pulse was 68; soft and compressible. The epigastric sensations recur, without eructation. In thirty-five minutes, the pulse was 62. In forty-five minutes, the pulse was 64. In fifty-five minutes, the pulse was 58, and very feeble. Sensations occur at the epigastrium in quick succession. In one hour and five minutes, the pulse was 60.

In one hour and fifteen minutes, the pulse was 57. In one hour and twenty-five minutes, the pulse was 54; soft, compressible, and with occasional intrusions. In one hour and thirty-five minutes, the pulse was 57. Dizziness experienced. Drank a cup of coffee. In two hours, the pulse was 63; rather stronger. In two hours and ten minutes, the pulse was 58. Dizziness gone. Muscular weakness still experienced. The pulse continued to range between 60 and 65, until three hours from the commencement of the experiment, when the observations were discontinued.

EXPERIMENT 3.—Ten grains of the powdered kernel were eaten. In three minutes, violent epigastric sensations occurred, and in six, eructation. Muscular weakness was distinctly indicated, in ten minutes, by the tests employed in the preceding experiment. No change was observed in the frequency of the pulse for twenty minutes, when it began to diminish in frequency and strength. General lassitude and dizziness became so great at this time that reading had to be discontinued. The pulse soon afterwards could not be counted.

In walking down stairs to my bedroom great dizziness and dimness of vision were experienced. The progression and gait were very unsteady, and I can remember having encountered the wall and handrails, more than once, on the way. Went to bed immediately, undressing with some difficulty, and on a chair, and soon fell asleep. This was about nine o'clock in the evening. Next morning, I rose at seven, took a bath in the sea, and felt quite well all day.

Remarks.—The above was written in the forenoon of the day following the experiment, when the particulars were fresh in my memory. In Experiments 1 and 2 the note paper was with me, and every thing written down as it was observed.

EXPERIMENT 4.—Pulse averaged 70 per minute. Ten minims of tincture of physostigma, diluted with half a drachm of distilled water, were drunk. In five minutes, the epigastric sensation was perceived, and the pulse was 76. In one hour, the pulse was 63; thready and feeble. In one hour and a-half the pulse was 54. It continued between 52 and 60 for one hour longer,—two hours and a-half after administration. In four hours, the pulse was 68; strong and full. All symptoms had entirely disappeared.

B. *Illustrating the Topical Effects.*

I. ON THE EYE.

EXPERIMENT 5.—A small drop of a syrupy extract was placed on the point of a thin probe, and applied to the conjunctiva over the left eye-ball. A copious discharge of tears immediately occurred.

In five minutes, the left pupil was a little contracted, and very evidently so in eight minutes, the left being one-half the size of the right. In ten minutes, the left pupil was the one-sixteenth of an inch in diameter. Vision with this eye was imperfect, the visual distance being lessened, but the iris was mobile. A slightly painful sensation was now experienced in the supra-orbital region of the left side, and a sensation of heat in the left eyeball. In thirty minutes, no change had occurred in the right pupil; the left was a mere speck. Vision with the left eye was almost lost; there was a little redness, and tenderness on exposure to the light. In one hour and a-half, all disagreeable sensations had gone, the dimness of vision was less marked, but the extreme contraction of the pupil continued. In four hours, the dimness of vision disappeared; but the contraction of the left pupil continued unchanged for twenty-four hours. It gradually diminished after this, but very slowly, as the symptom continued for five days.

EXPERIMENT 6.—A small quantity of the extract was applied to the outer surface of both eyelids of the right eye, avoiding, as far as possible, any contact with the conjunctiva.

In six minutes, the right pupil was contracted, and effects were caused exactly similar to those described in Experiment 5, with the exception that a

marked immobility was produced in the eyelids, accompanied with a disagreeable sensation of dryness. A slight degree of inversion of the upper eyelid was also produced when the eye was being closed. These symptoms disappeared in three days.

II. ON THE SKIN.

EXPERIMENT 7.—A test-tube, containing an ounce of tincture, was applied for twenty-five minutes, with its mouth in contact with the skin at the point of the index-finger of the left hand. No change was produced in the tactile or common sensibility of the finger.

EXPERIMENT 8.—A small piece of flannel was soaked in tincture of physostigma, and with this a portion of the back of the hand, over the first and second metatarsal bones, was rubbed for fifteen minutes. A drachm and a-half of tincture was altogether used. The common sensibility in this region was almost entirely destroyed. Pricking with a needle-point produced very little sensation, and the region could be defined by a succession of pricks from the unaffected skin.

This experiment was repeated with the extract, and the result was the same.

I have much pleasure in taking this opportunity to acknowledge my obligations to Professor Balfour, for his kind liberality in supplying me with the greater quantity of the bean employed in this investigation. The remainder was sent to me by the Rev. John Baillie of Old Calabar, to whom, as well as to the Messrs S. H. Edgerley, Hugh Goldie, and Geo. Thomson, I am indebted for the promptness of their replies to my inquiries regarding the employment of this ordeal at Calabar, and for the valuable information they have collected for me. My sincere thanks are also due to Dr Charles Wilson, for many suggestions in preparing this paper for the press.

Part Second.

REVIEWS.

A Manual of Ophthalmoscopic Surgery. By JABEZ HOGG, Assistant-Surgeon to the Royal Westminster Ophthalmic Hospital, etc., etc. Third Edition. Churchill and Sons: London: 1863.

THE greater the number of exact observations made, whether in pathology or therapeutics, the more limited does the range of mere theory become.

If, to use Bacon's simile, we do seem to check the flight of genius and weary its bright wings by adding the lead of stern facts to its too nimble feet, we gain in certainty what we lose in speed; and the slow steady march, in which accuracy and attention make every step an acquisition, is preferable to the wing even of an archangel, which leaves no trace of its flight.

It was well observed by Pringle, more than half a century ago,

that, from the Greeks down to that time, medicine was a science in which there was a great deal of reasoning upon a small number of facts; and that in future, on the contrary, there ought to be little reasoning upon a great number of facts.

The only true basis on which a rational system either of pathology or of therapeutics can be built, is an exact knowledge of the anatomy and physiology of the healthy organism; and, looking back on the progress of the last century, especially of the last fifty years, which has been indeed for our art a new revival of learning, we must honestly own that the advance is due, not so much to an insight of ours keener than our fathers, or to greater industry on our part, but chiefly to an extraordinary improvement in the practical methods of research.

Medicine has laid the physical sciences under contribution, and by optical, acoustic, and chemical auxiliaries, the microscope, stethoscope, and the test-tube, has opened into storehouses of information previously undreamt of and hitherto inexhaustible. Every year brings wider fields, and lays them under more precise and rigorous cultivation. It is doubtful whether medicine will ever be placed on a level with the other sciences in point of certainty; for we have to deal, not with lines and triangles as geometry, or elements in various combinations as chemistry, but with organisms complex as the chemist's wildest dream, animated by that strange inscrutable essence, which no scalpel can define or microscope examine, the psyche or life, which we share with animals; complicated still further by the soul, to which, in *its* diseases, no leech, however skilful, can minister.

In the roll of improved instruments of research, the ophthalmoscope, the subject of the present treatise, must be allowed a high place. It has proved, or rather is proving itself to the oculist, what the stethoscope is to the physician. In the investigation of the deep-seated diseases of the eye it is invaluable. It has given a local habitation and a name to many a lesion the bad effects of which only were known before, and, massed together under the one dreaded name Amaurosis, in which, as Walther said, "both patient and physician were alike blind;" and, better still, it has given us instruction, showing, in some cases, structural changes which render treatment useless; and in others, mere temporary lesions which timely treatment can cure,—saving, in the one case, a useless and probably exhausting course of medicine; and the other, rendering a cure almost a certainty, which previously was at best a rare and fortunate accident.

No man could have more claim than Mr Hogg has to be the author of a work on the ophthalmoscope. The author of the first detailed notice of the new instrument in this country, with the advantage of a large hospital to work in, he has thoroughly identified himself with the progress of the ophthalmoscope. That this is the third edition of his work since 1857, shows the estimation in which

it is held; and that within only six years the work has had to be completely rewritten and much enlarged, evidences the great strides which the new method of research has been making.

The first chapter contains an historical account of the invention of the ophthalmoscope, and the various forms it has taken. It is concise and practical; and in these days, in which everything is ascribed to the Germans, from systems of pathology to manuals of entozoa, it is satisfactory to find a due share of praise accorded to the observations of Cumming in the *Medico-Chirurgical Transactions* for 1846, which, however unnoticed in this country, had given the cue to Brücke and Helmholtz, of which they certainly made admirable use.

The optical principles involved in the use of the ophthalmoscope, the nature of light, and the artificial illumination of the human eye, are described in the second chapter; very simply indeed, but with sufficient scientific accuracy for any practical purpose.

In chapter third,—On the structural and functional accessories of vision—mutual relations, adjustment, and accommodation,—some interesting and difficult questions are raised; on the distribution of the nerves of the cornea, in which Mr Hogg's observations differ from those of Dr His, as to the mode of distribution and the relation of the nerves to the stellate cells; on the origin of *muscæ*; on the adaptation of the eye to distance, in which Mr Hogg differs from Donders and Helmholtz, in believing that in such adaptation the curvature of the lens is unchanged; on the adaptation of the vitreous humour for excluding the heat rays, besides its action as a refractive medium on the rays of light, so as to preserve the retina from undue exposure to changes of temperature.

A description of test-types and test-glasses, with a digest and extracts from Donders' remarks on presbyopia, myopia, etc., closes this chapter. The next is devoted to the examination of the healthy and diseased eye, with special reference to the ophthalmoscopic appearances. The difficult question of the visible pulsation in the blood-vessels of the optic disc in some cases, is fully discussed without being solved.

The remainder of the work—one long chapter of 160 pages—is a very complete outline of the surgery of the cornea, lens, vitreous body, retina, choroid, and optic nerve, with special reference to the information afforded by the ophthalmoscope, and its value as a means of diagnosis. Many illustrative cases, chiefly from the author's own practice, are given. It deserves most careful study; and though much remains to be done in ophthalmoscopic research, it is marvellous how much light it has already shed on subjects previously unknown.

Among the many questions of great interest and novelty, one or two deserve special notice. The new method of examination, as to the condition of the retina in those cases where a far

advanced cataract prevents the use of the ophthalmoscope, is fully described. Its proposer, M. Serres d'Uzès, calls it "phosphenic retinoscopy." The patient, with his back to the light, closes his eyes gently. Pressure is then made in different regions of the eye with any blunt, rounded instrument. A luminous circle, or arcs of a circle, if the retina be healthy, will be simultaneously seen by the patient; and if such are seen all round the eye, the inference is that the whole retina is functionally sound.

An interesting digest of the researches of Dr Liebreich on the subject of retinitis pigmentosa, and its relation as an effect of marriages of consanguinity, we would specially recommend to the attention of Dr Arthur Mitchell, as corroborating his views on that subject.

But the section in the whole book which will be first read by the oculist, from its practical significance, is that one which treats of the relative merits of iridectomy, and of Mr Hancock's operation of section of the ciliary muscle, as a remedy for the various pathological conditions of the iris, choroid, or humours, which we group under the name of glaucoma. Mr Hogg gives the preference to division of the ciliary muscle, of the merits of which operation no one has had better opportunities of judging. The exact method in which it proves curative is still a matter of doubt; but it is probably as much from its mechanical effect in relieving tension and evacuating a few drops of fluid, as from any relief of constriction and mechanical obstruction caused by the altered ciliary muscle.

The chromo-lithographs with which some of the ophthalmoscopic appearances are illustrated are exaggerated, and not so successful as we could wish; but wonderfully so, when we consider the difficulty of obtaining an artist who can either observe with the instrument, or appreciate what he does observe, and the trouble and expense attendant on the process of printing.

The whole work is extremely valuable, worthy of Mr Hogg's scientific reputation, and ought to be in the possession of every surgeon, whether specialist or general practitioner.

Practical Lithotomy and Lithotrity; or, an Inquiry into the best Modes of Removing Stone from the Bladder. By HENRY THOMPSON, F.R.C.S. Churchill and Sons: London: 1863.

THIS work, devoted to the consideration of the operations in vogue for the removal of stone from the bladder, and the circumstances which in a given case should lead to our selection of one procedure rather than another, constituted in large part the Lettsomian lectures which Mr Thompson delivered last year to the Medical Society of London. To some extent these lectures appeared in the periodicals of the day, not, however, in the full and just proportion to which in the present volume they have attained.

Mr Thompson, the author of this work, has most justly gained

for himself a reputation as a careful and painstaking writer upon the urinary organs, from two previous publications, which, in 1852 and 1860, gained for him the Jacksonian prize,—the first upon Stricture of the Urethra, and the second upon Diseases of the Prostate.

In this as in his former works, Mr Thompson writes as though feeling his way, treading tenderly, and communicating to the reader the impression (perhaps an unjust one) that his knowledge derived from the study of his subject is considerably ahead of his experience as a practical surgeon.

He writes pleasantly, however, and we read on, feeling that we have laid hold of an author who displays good plain common sense, a well-balanced judgment, and a capacity for description, so as to make himself easily intelligible to every comprehension. What our author lacks in personal experience he supplies by bringing others to his aid. He acknowledges in his preface the debt of gratitude he owes to the “best known hospital surgeons of this country for the very complete and valuable information relating to nearly 1500 cases,” which they have afforded him. The work has, however, a special interest to Scotsmen, in as far as “the entire and unpublished notes” of Mr Crichton of Dundee’s cases of lithotomy have been placed at Mr Thompson’s disposal for the preparation of this work; while Dr Keith of Aberdeen has most kindly aided him by giving him notes of no less than 300 cases of lithotomy and lithotrity occurring in his practice. The frequent reference made in the really practical part of the work to the “long and valuable list” of the former, and to the “large and admirable experience” of the latter, we acknowledge produces within us a certain sense of complacency,—a complacency which is not unnatural, when we consider the position which Scotch surgery has occupied in London, and the fact that the dexterity of a Liston in this very operation of lithotomy took London by surprise. Accordingly, we confess to have been not a little astonished to find the name of that illustrious surgeon only twice noticed in the work of one of the surgical staff of University College Hospital. Surely, in fifteen years, his name and fame as a lithotomist has not been forgotten in the hospital of his adoption, to the success of which his name so materially lent its powerful support. If it takes but fifteen years for one of the brightest constellations in surgery to become extinguished in the night of oblivion, how shortlived will be the reputation of the great majority of our modern surgeons!

In scanning the pages of Mr Thompson’s book, we do not think there is much which is strikingly novel either in the matter or arrangement of the subject; the *resumé* of the labours of other men, their devices, their successes, their failures, are well told, and for the student or young practitioner there could not be a safer guide than Mr Thompson’s work. The anatomy of the parts concerned in the operation performed for the removal of stones from the bladder is succinctly described; the woodcuts in illustration are

very diagrammatic, still they suffice to tell their own story. "Figure No. 20, p. 31,—anatomy in section of parts interested in lithotomy—position of hands in last incision,"—is certainly disproportionately drawn. Taking for granted that the ordinary length of the forefinger is 4 inches, according to this diagram the urethra must be 12 inches in length. Now, turning to Mr Thompson's work on Stricture of the Urethra, page 3, we find it stated that the average total length of the urethra from the anterior border of the *uvula vesicæ* to the meatus is $8\frac{1}{2}$ inches, the greatest measurement being 9, the smallest $7\frac{3}{4}$ inches. Furthermore, in this diagram, of which Mr Thompson says "Mr Bagg has represented this for me very carefully, from a dissection made expressly for the purpose," we find the prostate represented as being in proportion fully 2 inches from base to apex. Turning to Mr Thompson's work on the prostate, page 11, we find that the measurement of the gland from base to apex is $1\frac{1}{4}$ to $1\frac{1}{2}$ inches. Besides, the distance between the apex of the pubic arch to the tip of the coccyx is exaggerated, and the apex of the prostate finds itself altogether outside of the outlet of the pelvis, being fully in one half of its length anterior to the plane of the triangular ligament.

The operations of lithotomy described are the lateral operation, the bi-lateral, the medio-lateral, the median, Dr Buchanan's method, the recto-vesical, the high operation, with more or less detail, and with ample illustration of these proceedings, and the instruments required in their regular performance, or in the execution of special modifications of them. Next follows a chapter upon the causes of death after the operation. Then a consideration of the difficulties and dangers met with in lithotomy. The next chapter commences the consideration of the operation of lithotritry, a brief history of the rise and progress of this method of treatment, the principles upon which instruments should be constructed to attain the objects aimed at in its safe performance, the systematic application of this method of treatment, including a consideration of its difficulties and risks. The second last chapter, containing an estimate of the different proceedings detailed, and their special applicability to cases, is a good digest of what is generally taught by surgical teachers of the present day, and may safely be recommended by them to their pupils as containing the elements from which a decision is to be formed as to the course of operative and preparatory treatment which should be employed. The feeblest portion of the work is the last chapter, consisting of illustrations of the procedure and principles inculcated in the foregoing portions of the work. These illustrations consist of 20 cases, including 21 operations,—14 of lithotritry, and 7 of lithotomy,—selected from the practice of the author; they are very meagre and not particularly in point, and had they been the only source upon which Mr Thompson could draw in obtaining the material from which this work had to be reared, sure we are it would be much less deserving of the praise and attention which is its just due.

Outlines of Surgery. By F. LE GROS CLARK, Surgeon to St Thomas's Hospital, etc. Churchill and Sons: London: 1863.

A WORK on surgery by the surgeon to St Thomas's Hospital, and the translator of Dupuytren, must be judged by no ordinary standard. Qualified praises may be showered freely on books and men of lesser mark, on the principle that they have done what they could, and, perhaps, not having expected much from them, we have not been disappointed; but Mr Clark, were it only from his position, can claim no such questionable exemption.

This little volume consists, we are told in the preface, of the author's notes for his lectures somewhat amplified, which are offered to the student as a skeleton or groundwork, the details of which he is to fill in from observation, instead of depending too much on book-teaching in his early studies.

As in the place of a student of surgery in his first year, then, we must look at these outlines, and see how far they will help us in the study, and keep us from depending too much on book-teaching.

To compress the principles of surgery, as Mr Clark does, into 105 very small pages, necessitates of course almost the brevity of an index.

The whole question of surgical fever is dismissed in sixteen lines and a half,—the varieties, pathology, and symptoms of aneurism have a page and a half devoted to them. Now, without any discussion of its quality, such concentration in the quantity is not suitable for students; it must be either defective in its brevity, or indigestible from its concentration.

Besides, such extreme brevity may be used as a pretext for, though it cannot be said to excuse, a slipshod pathology, quite intolerable in these days. Let us examine the quality of Mr Clark's *essence of cancer* :—

"Cancer differs from all other growths in many features besides its microscopic character; it is an eliminative action established in some selected locality, and is exhaustive alike of the elements of life and of nervous energy. The product which forms the tumour is no conversion of texture, no hypertrophic growth, nor accumulation of natural secretion, but essentially new. It is uncontrollable by any known agent, and is often hereditary. Cancer presents itself in three different forms, viz.: encephaloid, colloid, and scirrhus.

"Encephaloid is characterized by its brain-like appearance and texture; it is the most rapid in its development, and exhibits under the microscope all growth in various stages and forms, the discharge from it containing the same elements. . . . The chemical constituents are fat and albumen, but the latter in greater abundance. Scirrhus is the same material (what material?) deposited in the interstices of fibrous bands; being sometimes quite cartilaginous in hardness, but less vascular and more indolent than the encephaloid."

Then, after one or two general remarks, and a quotation from Rokitansky, as to the frequency of cancer in various organs, comes the following astounding statement. "Encephaloid . . . is the only form prone to secondary development by actual contact or

conveyance in the circulation." Now, what does Mr Clark mean by this? We can hardly believe that an hospital surgeon and teacher of surgery means to deny the very frequent occurrence of cancer in internal organs, or the almost invariable extension of it to the neighbouring lymphatic glands in advanced scirrhus. The well-known statistics of Lebert and Birkett, apart from the everyday observation of the profession, have long ago proved *that*; yet the first-year student, in whose place we are, can attach no other meaning to the above sentence than such a denial. While again, if the meaning intended is, that cancers in internal organs, secondary to scirrhus, are always encephaloid, as used to be believed, the very high authority of Mr Paget showed years ago that usually such secondary cancers are in all points conformed to the primary.

No considerations of brevity can excuse the entire omission of such an important practical point as the spread of cancer by the lymphatics, to which Mr Clark does not even allude, though in the half page (in the practical division of the book) on mammary cancer, he does refer to the condition of the neighbouring glands as a point to be noticed in settling the question of operation. Many other instances might be given in which the attempt at brevity has resulted in defects of omission, and in obscurity of diction, neither of which are good for our student.

Such a synopsis of the surgical lectures of a teacher is always interesting to other teachers, as showing the order and arrangement of the course which has commended itself to another, and for purposes of comparison. Mr Clark's course seems to be arranged rather for convenience than on any scientific system, and, practically, this is what most teachers have to do. The operative surgery, for example, has to be compressed into one period of the course rather than spread through it, for the convenience of obtaining subjects. But some of the arrangements in this work are rather curious. Why does Mr Clark introduce acne, boil, carbuncle, and erysipelas into his first section, in the middle of his discussion of the various terminations of inflammation, between mortification and hospital gangrene, instead of putting them in their proper places, under diseases of the skin and cellular tissue? They are not merely given as instances of inflammation, but their pathology, causes, and treatment are fully discussed, and they are omitted under diseases of the skin.

Any full discussion of the practical part of the work is of course impossible from the great extent of the field traversed; but we cannot pass over unnoticed some most important sections of operative procedure in which Mr Clark's treatment is obsolete, and also based on very lax surgical principle.

When we are told in this year 1863, that, on account of the tediousness and trouble of opening the urethra in the middle line of the perinæum, in cases of retention from obstinate structure, it is better to puncture the bladder from the rectum, we need not be

surprised that potassa fusa is recommended instead of cutting for the cure of stricture.

In excision of the elbow-joint, we find a T-shaped or crucial incision recommended instead of the H-shaped, or the single longitudinal, neither of which are even mentioned, and we are directed "to save the olecranon if possible," with what object, or how it is to be done, we are not told.

Syme's amputation at the ankle-joint is so altered by Mr Clark that we can hardly recognise it.

"The lower incision, *i.e.*, the anterior margin of the posterior flaps, should be directly beneath the malleoli, and extend transversely across from one to the other. . . . The subsequent dissection is facilitated by another incision, carved downwards and backwards, and from the outer point of the union of the two flaps,—that is towards the tuberosity of the os calcis."

After this we are not the least surprised to hear of the results of such a procedure.

"Sloughing of the cellular tissue and of a portion of the posterior flap is not an uncommon occurrence, and therefore the latter should be of ample dimensions. The small angular flap left by the third incision is very likely to slough, but can well be spared."

Now this is utterly intolerable; that an operation which (when properly performed) is one of the most uniformly successful we have, should be garbled and vilified is bad enough; but that this should be done without a word of explanation as to the differences in the operative procedure between the operation invented by Professor Syme and the miserable apology described by Mr Clark, is really inexcusable under any pretext of brevity.

In a supplementary chapter, of about 60 pages in length, Mr Clark returns upon certain subjects previously only briefly discussed, and indulges on some of them in an elegant diffuseness apparently more natural to him than his previous self-enforced brevity.

We do not think that this little work will add much to its author's reputation, even on the principle conveyed in the northern proverb, of "Sma' fish being better than nane," but hope that the volume of *Illustrative Clinical Cases*, which is promised in the preface, will supplement its deficiencies and remedy its mistakes.

Transactions of the Pathological Society of London. Volume Thirteenth. London: 1862.

NONE of the medical societies in the metropolis are, judging from their transactions, in a more flourishing condition than the Pathological. Every year a handsome volume is published containing the record of its doings; and year by year, in addition to the well-known contributors, we find the names of new members who come for the first time before the Society and the profession. The

present volume is in no respect inferior to its predecessors ; it contains a large number of interesting observations, illustrated in many cases by well-executed plates or wood-engravings. Consisting as it does of isolated observations, criticism would be out of place, and an analysis would be merely a repetition of the list of specimens at the beginning of the volume. We may, however, quote an observation recorded by Dr Samuel Wilks, regarding a specimen of typhoid ulceration of the intestines from a woman in the seventieth year of her age.

"The specimen of ileum presenting the well-known typhoid deposit in the glands is only interesting in connexion with the age of the patient whence it came, it being unusual to meet with this form of disease at so advanced a period of life. It is agreed by all observers, that typhoid fever is not often met with at this age, just as true typhus is less common in children. This fact was thought by the older physicians sufficient to explain the difference between these two forms of disease, that the younger subject in whom the powers of life are greater, and the intestinal glands in a state of greater activity, is more liable to the typhoid form, or, as it was formerly called, common continued fever with the intestinal complication, whilst the patient at a more advanced period of age is more liable to have the genuine typhus where the intestine is not affected. It has been said, that the mulberry rash of the last-mentioned form is due to the greater prostration of the patient at this age, and should the younger subject by chance have a similar eruption, it is due to some accidental debilitating causes which have placed him in a similar position to the older one. Such opinions are easily combated by those who maintain the specific forms of the two diseases, but even these are agreed as to the greater susceptibility of patients of different ages to a particular form of fever ; thus, Dr Tweedie says, 'Typhoid fever is seldom observed above the age of fifty. It is not unlikely, that the alterations which Peyer's patches undergo with advancing age, may have something to do with the infrequency of enteric fever after the age of fifty.' It may be questioned, how far this statement is absolutely true, since in the absence of post-mortem examination a considerable difficulty might exist in forming a correct diagnosis of the nature of the case, seeing that typhoid does not present so well-marked symptoms in the old, just as typhus is more obscure in the young. In the case which suggests these remarks, the disease was supposed to be typhus, and it was only the post-mortem examination which revealed the true nature of the disease.

"The patient, a woman, was in her seventieth year ; she had been ailing about two weeks with the ordinary symptoms of fever when she was brought to the Hospital. She was then in an extreme state of depression with excessive nervous and muscular debility, was quite insensible, and was delirious. There was no mulberry rash, the skin being quite clean, nor were any rose spots observed, and during the three days she lived, the bowels were open only once daily, and the motions were semi-solid. The post-mortem examination showed the typhoid disease well marked in the ileum ; Peyer's glands being considerably enlarged by the deposit.

"The case may, therefore, be regarded as a good one in exemplification of the specific nature of the typhoid affection, for all the circumstances of the patient were those which should have insured the development of typhus with the mulberry rash, and yet here, in spite of age, the true characters of the typhoid disease were all present."

Part Third.

PERISCOPE.

PRACTICE OF MEDICINE.

ON THE NORMAL AND PATHOLOGICAL HISTOLOGY OF THE KIDNEYS.

BY V. RASMUSSEN.

PASSING over the normal histology, which the author goes into at considerable length, of the renal vessels, the renal parenchyma, and the interstitial connective tissue, we proceed to notice the pathological changes in the kidneys referable to the term "Morbus Brightii," as they are described.

The author prefaces his remarks on this subject by observing—"In studying renal diseases, the object of our investigation is to establish the three following principal points:—1. What tissue or tissues are affected (vessels, parenchyma, or interstitial connective tissue); 2. Whether only the cortical substance or the pyramids are attacked, or both together; and, lastly, 3. Whether the affection is partial or diffused. In the commencement a definite tissue can always be indicated as the starting-point of the affection: later this is most frequently not possible; the several tissues are dependant on each other, so that they are often consecutively attacked; but, on the other hand, the several lobuli possess also independence of each other, and we have already seen that the vascular system of the cortical substance and that of the pyramids are to a certain extent independant of one another. It is especially chronic affections of the kidney which will be the subject of our consideration in an anatomico-pathological point of view. Formerly these were comprised under the name of 'Morbus Brightii,' but this is a very inaccurate denomination, and one which conveys but little information. The older investigators properly included under this term only what we now call parenchymatous nephritis, whose terminal stage is the characteristic and striking granular atrophy. Although this form is by far the most frequent, modern researches have revealed other pathological changes in the kidneys, which clinical physicians have not yet succeeded in definitely diagnosing from the parenchymatous nephritis; and it becomes, therefore, necessary to refer to these also the designation 'Morbus Brightii,' so far as such a name shall be retained as a common denomination for these extremely different conditions. The essential symptoms are the albuminuria and the diminished secretion of urine, while the so-called fibrin cylinders have not the signification which Frerichs ascribes to them; they occur, at all events, only in the parenchymatous nephritis, and not even constantly in that. Here are three essentially different affections to be considered, each occupying its own tissue.—1. The amyloid degeneration of the kidney; 2. The parenchymatous; and 3. The interstitial nephritis. They may complicate one another; nay, all three may be present at once; sometimes one, sometimes another occurs first, but the parenchymatous is most frequently the primary affection."

Rasmussen then proceeds to consider the above-named three affections.

The amyloid degeneration can only VERY RARELY be recognised without having recourse to the chemical reaction (*i.e.* by the microscope alone), owing to the limitation of the disease to the vessels, to the exclusion of the parenchyma, and also to the fact that the disease is most frequently combined with parenchymatous or interstitial nephritis, or the interstitial fatty kidney, especially in people who have died from the dyscrasia of syphilis or of the mercury by which it may have been treated. The author observes, that in the amyloid kidney we may or may not have a lardaceous or waxy appearance, that in very

extreme cases of degeneration we may almost certainly detect this amyloid condition by the glomeruli assuming a whitish-grey, shining, enlarged, and prominent character, which appearance is also assumed by the "vasa afferentia," and other neighbouring arteries. As regards the vessels which are affected, it is asserted to be the small vessels, and in this order: "first and foremost, the glomeruli and vasa afferentia, next the vasa efferentia and the capillaries in the cortical part, and, finally, the 'arteriolæ rectæ;'" rarely are the large vessels affected, and it is long before other tissues become so.

Owing to the peculiar deposit affecting the vessels and glomeruli, the supply of blood becomes diminished, the cortical substance anæmic, while the hyperæmia increases in the pyramids, and hæmorrhage occurs at times owing to increased pressure on the inelastic vascular works, giving rise to reddish or brownish streaks or spots. This thickening of the vessels, etc., from amyloid is not to be confounded with the thickening which results from a change corresponding to the "so-called end-arteritis," by which organization of newly-formed elements and subsequent atheromatous and fatty degeneration is produced, chiefly, indeed, in the larger vessels, but at times affecting the glomeruli. This fatty degeneration commences with an increase of nuclei of the capillaries, which divide, become separated, and thus elongate the loops in the glomeruli without increasing their calibre. If the process advances, small fatty particles accumulate around the nuclei, and increase with disappearance of the nuclei. Thus a whole glomerulus may degenerate, and the same result be produced as if we had amyloid degeneration. Such a fatty degeneration of the glomeruli may, microscopically, simulate amyloid, but the reaction and the microscopic appearances soon discover the difference. The author gives in detail the best method of obtaining the chemical reaction of amyloid.

As respects the "*parenchymatous nephritis*," the author, after alluding to the relation of the epithelium of the renal canals to the urine, and to the fact that the cells in the convoluted tubes are larger and richer in albumen than those in the straight ones, points out that any disease of the former rendering them inactive will be of more serious import than disease of the latter, producing an actual change in the urine; and in consequence of this distinction he establishes two forms of parenchymatous nephritis, the "papillary catarrh," or catarrhal nephritis, and the *proper* parenchymatous nephritis.

The PAPILLARY CATARRH, situated in the straight canals and papillæ, and comparable to the bronchial catarrh, is often continued from the bladder or urethra, but may be caused by external agents, as the use of cantharides, acid diuretics, and alcoholic drinks. It is often complicated with parenchymatous nephritis, and may be the starting-point for it. Post-mortem examination shows the affected canals and papillæ to be attended by a whitish or yellowish striation, with hyperæmia of intervening vessels; and when the disease is owing to internal remedies, hyperæmia and bloody ecchymosis over the whole kidney exist. If the disease continues long, the distended urinary canals press on the bloodvessels, and thus the hyperæmia ceases. The disease is mostly limited to an abundant and varied production of cell-growth (nucleated, club-shaped, or fusiform, and, it may be, ramifying), mixed with mucous catarrhal products; but a process may exist, as in the acute forms, like that of the proper parenchymatous nephritis, with fatty metamorphosis and destruction of epithelium.

The PROPER PARENCHYMATOUS NEPHRITIS is described (after Virchow) as an hypertrophy of the cells of the convoluted canals, which take up large quantities of the albuminates, become distended, turbid, granular, and adhere closely together; subsequently the cells vanish, and the granular fatty mass becomes free, forming the "inflammatory globules." The author describes three stages of the affection (which he parallels with pneumonia), which may all be going on simultaneously, and delineates the anatomical characteristics of each one. This affection often coexists at the later stage with intestinal nephritis. In the second stage (that which, when papillary catarrh exists, as nearly as possible constitutes "Bright's kidney"), the retardation of the venous

blood is described, and the consequent formation of thrombus, and the continuation thereof to the vena cava and heart, and also transmission into the lungs. The third stage described is, in fact, a resolution or recovery, and corresponds to the complete fatty metamorphosis of the cells, generally, but not always, with loss of substance, induration, granulation, and formation of cysts in connexion with the urinary canals. The interspaces between the granular elevations of the surface are ascribed to the empty collapsed canals, which, owing to their pressure on the vessels having ceased, are often of a reddish colour; and the author points out that this granular atrophy is not analogous to cirrhosis of the liver, inasmuch as it is the parenchyma itself which is first affected, and only subsequently complicated with intestinal nephritis; whereas in the case of the liver it is not the hepatic cells which are first affected, but the inter-acinous connective-tissue. In the third stage the glomeruli are described as generally small, corrugated, surrounded by thickened capsules of connective-tissue, and possibly (as also the epithelium) in a fatty state, sometimes amyloid, and sometimes calcareous.

In the *interstitial nephritis*, the change in the interstitial connective-tissue may preferentially affect the intercellular substance, which becomes hypertrophied, whilst the cells only become slightly increased in number, though they become larger, or the cells may multiply by frequent subdivision, whilst the intercellular substance is not much increased; and if this condition is very extreme, suppuration is the consequence. A third but rarer result is the interstitial fatty kidney, when the newly-formed connective-tissue passes into fatty degeneration. In the first and lower degrees of the second form, the connective-tissue contracts around the canals and glomeruli, and the circulation is more or less obstructed; the interspaces become increased, the urinary canals slender and sometimes constricted in a bead-like manner, and the tunica propria is often thickened and streaked; and the glomeruli are seen small, homogeneous, and in a more or less fatty state. Other interstitial changes, which might be mistaken for the above, may arise from venous stages in the kidneys, in diseases of the heart, or from increase of the capillary nuclei, which may be mistaken for the nuclei of connective-tissue. The author specially mentions a form of interstitial nephritis affecting the pyramids, or circumscribed (syphilitic), in which depressions and cicatrices form not unlike those from hæmorrhagic infarctions.

In the *interstitial fatty kidney* (which is rare) the organ is large and flaccid, and is full of yellowish or whitish striae and marks, and there is often amyloid or parenchymatous nephritis; the urinary canals are of diminished calibre, and separated far by fatty masses; the glomeruli, and generally the walls of the vascular cells are fatty or amyloid.

As respects the albuminuria of chronic renal affections, the author supposes that the albumen is transuded from the intestinal capillary network, owing to the increased lateral pressure, as especially when the afflux of blood is arrested; for example, when the renal vein is tied. He supposes, however, that to a certain degree the albumen may be eliminated in the glomeruli or from the large albumen-holding epithelial cells.

Other so-called FIBRIN CYLINDERS are not to be looked on as an inflammatory product. Their origin is obscure, being found chiefly in the straight tubes and the pyramids, more rarely in those of the cortex, and scarcely at all in its convoluted tubes; also often in the constrictions and small cysts. They scarcely ever consist of fibrin, but are analogous to the so-called colloid mass. Those occurring in papillary catarrhs are formed of mucin. The author seems inclined to look on these cylinders (with Key and Virchow) as dependant on changes in the albumen of the epithelial cells.—*British and Foreign Medico-Chirurgical Review*, July 1863.

CASE OF ADDISON'S DISEASE. BY DR VAN DER CORPUT.

A MARRIED woman, 37 years of age, presented herself at the Hospital Saint-Pierre about the end of August 1862, complaining of epigastric pains, with ema-

ciation and brown coloration of the skin. She was admitted, and the affection diagnosed as *Morbus Addisonii*. Death occurred suddenly on the 30th of the following November. The post-mortem examination was made thirty-two hours after death. The body was emaciated. The characteristic brown discoloration of the skin, which was not quite so well marked as during life, was most pronounced on the face, on the back of the hands, around the nipples, in the armpits, between the buttocks, and towards the navel. There were no blanched patches on any part of the body. The buccal mucous membrane presented at the level of the teeth, and along the palatine raphe a succession of irregularly rounded patches of a bluish brown colour, varying from the size of a millet seed to that of a lentile. Some similar markings were observed on the inner surface of the labia majora. On opening the abdominal cavity the epiploon loaded with fat was seen; there were no discolorations of the peritoneum; the intestines were pale, and, like the mesenteric glands, free from tubercle. The suprarenal capsules were next examined, and were found to be at least three times their normal size. Their shape was rather rounded than triangular. They were of firm consistence, and the surface was nodulated and of a dark red colour. The cellular tissue surrounding them was much injected and apparently infiltrated with blood. The veins which emerged from them were voluminous and gorged with black blood. When cut into in the direction of their great diameter, their cavity was found occupied by tubercular masses, yellowish, irregularly juxtaposed, and from the size of a pea to that of a bean. The cortical tissue of the capsules was thickened and congested, and of a reddish-brown colour. The medullary substance seemed entirely replaced by tubercular matter. The right capsule was more voluminous than the left; its weight was one ounce, that of the left about seven drachms. At the apex of the left lung was a single cretaceous tubercle, consisting of a very hard calcareous matter, irregular, of the size of a small pea. The right pleura was slightly adherent at the apex, but with no trace of tubercle. There was no effusion on either side. The surface of the lungs had a reddish slaty appearance with occasional black arborescent patches. On section, the base was found congested. Throughout their whole extent numerous masses, varying from the size of a pin's head to that of a pea, were found scattered about; they were of an irregular shape, and consisted of a black matter. Some of these masses presented a certain degree of hardness to the touch and to the scalpel. The same black matter, nearly pure, infiltrated the bronchial glands. Microscopic examination showed in the yellow masses found in the suprarenal capsules the elements ascribed to tubercle, namely, polyhedric corpuscles with obtuse angles, accompanied by a finely granular amorphous matter and some flat globules. The blood, particularly that of the spleen, presented some free pigment-corpuscles floating among the globules, as well as some colourless cells. The deep layer of the epithelium of the visceral mucous membrane was infiltrated with slightly granular pigment of a brownish-red colour. The skin presented pigmentary granulations of the same colour as those found in the mucous membrane; but they had this peculiarity, that they were found deposited in the cells which covered the papillæ of the skin, so that on a transverse section they appeared arranged in the form of rings more or less elongated, or of arcs of circles of perfect regularity, while on a perpendicular section they appeared arranged as cones more or less perfect. The bronchial glands were infiltrated with black pigmentary matter disposed in masses around the cells. This matter, irregularly granular, of a dark black colour, was not sensibly affected under the microscope by concentrated sulphuric, nitric, or acetic acid, nor by caustic ammonia. Acetic acid slowly separated the melanin corpuscles. Nitric acid, on the contrary, seemed to agglomerate them into black opaque masses with yellowish borders. In the lungs the pigmentary matter occurred in the form of free carbonaceous corpuscles disposed in the intervesicular cellular tissue, or irregularly united into little masses such as those found in the bronchial glands, but generally less dense. In the neighbourhood of these masses the pulmonary vesicles had disappeared

or become atrophied. Free pigment-corpuscles were found in the substance of the liver between the hepatic cells, but were nowhere accumulated into masses. The gray matter of the brain contained a large number of the same corpuscles. — *Annales de la Société Anatomique de Bruxelles.*

CASE OF HÆMOPTYSIS, WITH PECULIAR PHYSICAL SIGNS. BY DR S. L. ARBOT.

MR C., a young man, 25 years of age, a tailor by trade, of previously fair health, was suddenly seized with a violent attack of hæmorrhage from the mouth, accompanied by retching, and without antecedent cough. Two similar attacks followed within the space of a week. Another physician whom he had consulted regarded the case as one of hæmatæmesis, and there were several circumstances about it calculated to give this impression. It was found, as has been observed, that the bleeding was accompanied by severe retching, and on pressure at the epigastrium a very sensitive spot was detected, about four inches below the ensiform cartilage, over which croton oil had been applied by the advice of the gentleman previously consulted.

On making examination of the case, it was found that the patient had not been subject to cough, but had been troubled with a catarrhal affection of the throat, with over-secretion from the follicles of the tonsils. In clearing the throat in the morning from the collected secretion of the night, it was quite a common occurrence with this patient, as so often happens in such cases, for the attempt to excite nausea and retching. His throat belonged to that sensitive class in which the slightest touch produces this effect. On questioning him carefully, it appeared that the sudden flow of blood into the mouth was the first phenomenon, and that its presence there and the attempt to clear the throat as it rapidly welled up, brought on the retching. There was no vomiting of food. It thus became evident that the effort at vomiting was secondary to the bleeding. The same effort would seem to explain the soreness at the epigastrium, which still continued, and which seemed to be muscular. The patient was not aware of the existence of the sensitive spot until it was forcibly pressed upon, and had had no symptoms at any time previous referable to the stomach. Neither was there any evidence of blood in the alvine evacuations, as there probably would have been in case of such profuse hæmorrhage, if from the stomach.

The pulmonary physical signs in this case were peculiarly interesting. There was moderate dullness on percussion in the upper half of the left-front, with rather coarse respiration, but no crepitus on inspiration, or excited by cough; but during the diastole of the heart, while the lungs were in the act of expiration, there was a peculiar crepitus, extending from a point over the aortic valves in an oblique line down nearly to the left nipple, synchronous with the diastole, and thus heard several times during a single act of expiration. The sound was very peculiar, and at once suggested the compression of a portion of lung, from which the air did not easily escape by the natural elasticity of the part, between the heart and the walls of the chest. It suggested to the ear very much what is felt to the touch when a portion of crepitating dead lung is pressed between the fingers. This sign was unmistakable, and was observed constantly, gradually diminishing as the condition of the patient improved, and as the cough grew less, until it was limited to a spot of about an inch in diameter over the base of the heart. It was worthy of note that this sign was perceptibly less on the day after a slight return of bleeding, which seemed to have relieved the engorged tissue. I could not doubt that it was produced by compression by the heart, while filling with blood, of the overlying edge of the upper lobe of the left lung, which was in a state of congestion. In confirmation of this theory it was remarked, that when the lung was fully inflated and the respiration was suspended for a few moments, the sound ceased; the pressure produced by the heart's diastole not being strong enough to squeeze out, so to speak, the enclosed air, as it did when the act of breathing was uninterrupted.

Another sign in this case was one which has been mentioned of late by

writers as an early symptom of phthisis, or solidification of the lungs by tubercles, namely, a systolic souffle heard over the condensed portion of tissue, attributed to more or less compression of the arch of the aorta, or the large arteries given off from it, by the solidified lung. In these cases the sounds of the heart at the apex and at the base are heard perfectly unmodified; but, on following up the vessels towards the summit of the lung, the souffle is distinctly heard in the situation of the dulness on percussion. I have heard this sound recently in two cases of persistent dry cough, with rational signs of commencing phthisis, but without crepitus, and am inclined to attach much value to it as an early warning of the disease. In the present case this sign was very marked in the upper front third of the left lung, and clearly pointed to a partially condensed condition of that lung. As the case progressed and the condition of the patient improved, this sign also gradually diminished, although it has not entirely disappeared. I regard it as an unequivocal evidence of more or less solidification. Thus, in this case, there have been two signs of pulmonary condensation—one caused by the compression of lung tissue by the organs of circulation, the other by compression of the organs of circulation by the lung tissue.—*Boston Medical and Surgical Journal*, July 1863.

ON HÆMATOMA OF THE EXTERNAL EAR IN THE INSANE. BY W. PHILLIMORE STIFF, M.B., PHYSICIAN TO THE COUNTY ASYLUM, NOTTINGHAM.

(Communicated to the Midland Branch of the British Medical Association.)

THE subject which I am about to introduce to your notice, that of sanguineous cyst of the ear in the insane, is of importance in a medico-legal point of view. Some writers allege that these hæmatic cysts are the result of injuries either self-inflicted, or from the employment of violence on the part of attendants and nurses. The statement of Gudden, in support of the latter view, has been most extensively circulated (see *British Medical Journal*, May 1861, p. 469; *Medical Critic*; and *New Sydenham Society's Year-Book*). He maintains that these swellings are entirely owing to mal-treatment; and points out that ears closely resembling those of the insane are not unfrequently met with amongst sculptures depicting pugilistic athletæ. Singularly enough, in his efforts to bring this home to the attendants, he avers that he has never met with an instance in which the injury could be traced to the patient himself or to other patients. How this can be reconciled with the fact, that patients frequently fall on the ear in fits, and are struck on it by their own associates, I am at a loss to imagine. Again, in the lately published work of Dr Kramer, "*On the Aural Surgery of the Present Day*," the observations of that author are calculated to encourage the theory of the physical origin of the disease. He says, "The causes of these bloody tumours on the cartilage of the ear are unknown, though we must admit that they are especially likely to be produced by violence (blows on the ear), which, perhaps, explains their more frequent occurrence on the left ear." (*New Sydenham Society's edition*, p. 41.) In the *British and Foreign Medico-Chirurgical Review* for January 1858, I published a short memoir on this peculiar disease, illustrated by engravings after photographs of the altered ears; and I therein advocated the contrary opinion, based upon observation and inquiry, that the lesion is not occasioned by physical injury, but that it is the result of a spontaneous hæmorrhage arising out of a pre-existing diseased condition of the vessels of the pinna of the ear.

Two cases came under my notice last autumn, strongly confirmatory of this opinion. Both were to be seen running their course together, but distinct in their appearance and characteristics. The one was a well-marked example of hæmatoma, arising without any external interference; the other, a case of severe contusion of the ear after a blow, not presenting any appreciable swelling, but only ordinary interstitial ecchymosis, although this patient was predisposed to hæmatoma, and was the subject of partial ossification of the cartilage of the opposite ear.

CASE I.—30th September 1862.—R. H., aged 71, has confirmed chronic mania.

He has been insane fifteen years; has the appearance of having been a free liver; is phlegmatic; inert; mutters to himself; has hallucinations about spirits, that they pull his inside out. This morning I observed that the left ear was thicker than usual, owing to a circumscribed hæmatoma, not noticed the day before. There was no discoloration, no bruise. The ear had not received any blow, nor been interfered with. The swelling was about the size of a broad bean it felt tense and elastic, and was limited to the scaphoid fossa, antihelix, and concha partially; was not painful. The fluid could be displaced slightly. There was no pitting on pressure, nor external inflammation. As usual, the posterior surface of the ear was not implicated, although the skin was more lax and not so firmly attached as on the anterior surface. On 20th Oct., the hæmatoma was less swollen, it was flabby, and its fluid contents were diminishing. On 20th Dec., the swelling had been apparently stationary during the last month. On 15th Jan. 1863, it was undergoing the shrivelling process. On 16th March, it had become firmly indurated; ossification had taken place; the skin was adherent to the cartilage; elasticity was lost. No treatment was required.

CASE II.—26th November.—T. B., aged 58. This patient has confirmed hereditary chronic mania; he says that he wrestles with the devil; is mischievous and disorderly, and attacks his neighbours viciously. He received this day a violent blow with the fist over the left ear, which produced a well-marked bruise of irregular shape. The concha and greater portion of the anterior surface of the pinna were discoloured. There was no appearance of hæmatoma, no blood was effused between the cartilage and skin, but the latter showed interstitial ecchymosis. The posterior surface was similarly affected, as also the integument over the mastoid process, against which the ear had been driven; skin nowhere broken. This patient was predisposed to hæmatoma, and had the characteristic appearance of old ossific deposit in the unbruised right ear. The bruise lasted about six weeks, when the ear regained its natural colour, and left no further evidence of having suffered injury.

It is admitted on all hands that these effusions occur most frequently amongst the insane, or in patients affected with serious lesions of the nervous centres. It has been shown by several pathologists that there is a pre-existing state of disease before the occurrence of the sanguineous effusion. The disease may be observed in both ears in different stages; and occasionally the cartilage may become ossified without the occurrence of the stage of effusion. When blows are received by the same class of patients over the analogous structures of the eyelids and nose, the same morbid changes do not take place. Epileptics are less liable to it than chronic maniacs. Cartilaginous nodules are sometimes developed after wounds of the ear, but their history, course, and pathology are quite distinct.

In two specimens of hæmatoma, occurring in the ears of the same patient, Mr Toynbee informed me that he had found the cartilage of the right ear greatly hypertrophied, and in some parts ossified. It had Haversian canals and corpuscles like normal bone. Bony matter was deposited in the left ear, which did not pass through all the various stages.

I entertain no doubt that the disease depends upon internal or centric causes, and is, probably, one of the results of the atheromatous diathesis. It runs a well-defined course, the duration varying from a few days to several years; and, unlike contusions, leaves structural alterations and disfigurement of the organ.

These two cases corroborate in a remarkable manner the views of those who consider that the phenomenon is the result of disease and not of accident, and they may be regarded in the light of a crucial experiment, decisive of the question at issue; confirming the fact, in the one instance, that hæmatoma may be developed without the intervention of external violence, and disproving, in the other, that it could be produced by a blow in a person predisposed to the affection.—*British Medical Journal*, Aug. 1, 1863.

ON THE ACTION EXERCISED ON THE PUPIL BY THE EXTRACT OF THE CALABAR BEAN (*Physostigma venenosum*). BY M. GIRALDÈS.

(Read before the Academy of Sciences of Paris.)

THE fruit of this leguminous plant possesses poisonous properties with which we are familiar; but its anti-mydriatic action was unknown until the researches of Dr Fraser,—researches contained in his inaugural thesis presented to the Medical Faculty of Edinburgh in 1862. This action, among others, has been confirmed by many British physicians and physiologists.

The Calabar bean is unknown here, and it is by the favour and kind assistance of Dr Fraser, that I have been enabled to procure this substance and to try, in my wards of the hospital for sick children, several experiments with the following result:—

On eight children, of the ages of three, four, six, eight, twelve, and thirteen, whose pupils were considerably dilated, one drop of a solution of the extract of Calabar bean in glycerine was introduced between the eyelids with a small brush. The pupil was distinctly contracted in all. A few minutes afterwards, at the end of from fifteen to twenty minutes, this contraction had reached the extreme, and the size of the pupil was reduced to a minimum, having scarcely the diameter of half a millimètre (about one-fifth of a line). In one of these children the pupil had been previously dilated with a drop of a solution of sulphate of atropia, and this dilatation had reached its maximum at the time of the experiment with the Calabar bean; in twenty minutes, the papillary opening had regained its normal size, and shortly after had contracted to the diameter of half a millimètre.

This contraction, as has been observed by others, ceases in about fifteen or twenty hours. In the present instances, twenty-four hours after the application the pupil had returned to its previous condition. This property of causing a rapid contraction of the pupil will supply many valuable applications in ophthalmic practice.—*Comptes Rendus*, 6th July 1863.

ON AMAUROSIS FROM TOBACCO-SMOKING. BY M. SICHEL.

M. SICHEL observes, that among cerebral amauroses there are two forms but little known. One of these observed in drinkers, he himself described as symptomatic of delirium tremens several years ago. The other, due to the use of tobacco, and first indicated by Mackenzie, he once doubted the existence of. Subsequent experience has, however, convinced him of its reality; so much so, that he is now of opinion that there are few persons who have smoked during a long period more than five drachms of tobacco per diem, without having their vision and frequently their memory enfeebled. Both these forms of amaurosis are characterized by the absence of well-marked symptoms of cerebral congestion, the symptoms vibrating between those of sthenic and asthenic amaurosis, and the surgeon remaining in uncertainty as to their seat and nature until the special cause is discovered. The ophthalmoscopic symptoms, as in most old cerebral amauroses, are negative or slight, and common to other cerebral amauroses. These two forms of amaurosis, like all affections dependant upon an inveterate habit, are very refractory to treatment. Generally, the two forms are observed separately, but it is not rare to find them united, and it then becomes difficult to assign the respective shares to the alcohol and tobacco in the production of the amaurosis. M. Sichel relates an interesting instance of this combination, remarkable for yielding in so short a period as six weeks, while from three to twelve months are usually required to effect amelioration in these cases. In treating them, discontinuance or diminution of the habit is a great and difficult desideratum. Depletion, even local, should be employed with the greatest caution; and stimulating liniments or flying blisters may aggravate the symptoms. A purgative, consisting of equal parts of magnesia and cream of tartar, is an excellent means when the function of the stomach is active, alternating it with pills of gum ammoniac and aloes; but in the disordered stomach of drinkers, small doses of rhubarb and magnesia, given twice a

day, one hour before meals, form a good corrective. Bathing the eyes and forehead with cold water, irritant pediluvia, and dry cupping or flying sinapisms applied to the extremities, are excellent adjuvants. In M. Siehel's case, an ointment composed of one part of the black oxide of copper, and ten parts of lard, was applied to the temples, and was succeeded by flying blisters. M. Mercier, in corroboration of the unsuspected effects of tobacco in generating disease, related a case in which a cough, which had persisted for a year, and purpura, which had lasted for seven months, soon yielded after the cessation of smoking, which had been excessive. His own practice has furnished him with full proof of the depressing effect of this agent upon the generative functions.—*British and Foreign Medico-Chirurgical Review*, July 1863.

Part Fourth.

MEDICAL NEWS.

MEDICO-CHIRURGICAL SOCIETY OF EDINBURGH.

SESSION XLII.—MEETING X.

1st July 1863.—JAMES SPENCE, Esq., *President*, in the Chair.

I. EXCISION OF THE KNEE-JOINT.

Mr Spence showed a specimen from a case where he had excised the knee-joint on account of disease beginning in the articular end of the bone and affecting the joint secondarily. This was an example of a class of cases to which, in *Mr Spence's* opinion, excision should be almost entirely limited; they were not curable; the pain was intense, the local disease limited, and if the general health was not much affected, these were favourable cases for excision.

II. EXCISION OF JOINTS ON ACCOUNT OF INJURY.

Mr Spence showed two specimens of injuries of joints. The first consisted of the articular ends of the femur and tibia (the knee-joint), the second of the bones of the elbow-joint; both were examples of primary excision of joints on account of injuries. The first specimen was important, as illustrating a surgical principle in reference to the knee-joint. A man jumped out of a railway carriage, and received a slight wound of the joint; there was also a dislocation of the shoulder, and some bruising of the head. In the case of the knee-joint, the question was whether primary amputation should be performed, or whether the joint should be treated with a view to the production of ankylosis. In either case there was much risk to life. From what we see of penetrating wounds of the knee-joint, we know that there is much constitutional disturbance. *Mr Spence* determined to perform excision of the joint, although the case was not a very favourable one for it. Certainly after this operation there had been less risk of constitutional disturbance than if the wound had been left to itself. Excision was practised three weeks ago, and hitherto everything had gone on favourably. The other case had come under *Mr Spence's* care yesterday. A man fell from a height of four stories into an area. He sustained a compound fracture of the thigh, had slight concussion, and received a severe injury of the elbow-joint. It was evidently right to attempt to save the thigh. When *Mr Spence* first saw the patient, at one o'clock, he was in a state of shock, but on returning in the afternoon it was found that reaction had set in. There was oozing from a small wound, connected with a compound comminuted fracture of the elbow-joint. *Mr Spence* determined to lay open the parts with a view to the performance of excision rather than of amputation. He

did so by a linear incision. The humerus was found split between the condyles; rather more than usual of this bone required to be taken away. If the patient recovered from the other injuries, the arm, even although the joint were flail-like, would be better than none, and excision of the joint produced less shock than amputation of the limb. The case was also interesting, because the olecranon was broken across, and yet the parts were held in position by the tendinous attachment of the triceps.

III. CANCER OF THE VERTEBRÆ.

The subject of the observation, a man nearly sixty years of age, applied to Dr Haldane for advice at the Royal Public Dispensary about the end of March. He complained of severe pain in the lower part of the back, and as he was emaciated, and had an anxious expression of countenance, suggestive of the existence of organic disease, he was advised to seek admission into the Royal Infirmary. He was accordingly admitted, under Dr Haldane's care, on the first of April, when the following facts were ascertained regarding him. He was by trade an engraver, and, being a tall man, was necessarily obliged to stoop much in the exercise of his avocation. He had been for some time of rather intemperate habits. The pain, he stated, was situated in the lumbar region, and extended into the abdomen; it was somewhat increased on pressure, but still more on coughing. No tumour or swelling could be detected. The urine was examined and found natural. After having been in the hospital for some time, he began to complain of a sensation of numbness and prickling in the legs, accompanied with diminished power of voluntary motion. His urine at the same time was found to be ammoniacal, and loaded with triple phosphates, and to contain pus. These symptoms gradually increased in severity, the patient became more and more emaciated, the pain became more intense, and the aggravation on coughing was extreme. The symptoms of paraplegia became more developed, until the power of voluntary motion was completely gone; retention of urine also occurred, and the catheter required to be used twice daily. The patient gradually sank, and died on the eleventh of June. Shortly after his admission, the diagnosis of cancer of the vertebræ, causing pressure upon the lower part of the spinal cord had been come to, and the gradual sequence of symptoms tended to confirm it. Treatment was purely palliative, and had but little effect in relieving the pain. On post-mortem examination there was found to be cancer of the third lumbar vertebra, the body of that bone being almost completely converted into a cancerous mass. This mass projected slightly into the abdominal cavity, and had extended backwards so as to diminish considerably the size of the spinal canal, and hence to exert pressure upon the cauda equina. There was also intense cystitis, inflammation of the lining members of the ureters, pyelitis, and abscesses in each kidney.

IV. CANCER OF THE STOMACH.

Dr Haldane showed a specimen of this disease. The patient, a man fifty-seven years of age, had been suffering from gastric symptoms for about three months previous to his admission into the Royal Infirmary. At the same time he noticed that he passed some black, tarry-looking matter from the bowels. On admission, he complained of no distinctly localized pain in the epigastric region, but only of a feeling of oppression and uneasiness, aggravated on taking food, but relieved on the occurrence of vomiting, which occurred shortly after almost every meal. Three days after admission, the matters vomited were found to contain blood, and he died somewhat suddenly on the following day. On post-mortem examination, the stomach was found to be enormously distended, and contained several pints of a fluid resembling coffee-grounds. Along the lesser curvature of the stomach was a series of cancerous nodules, affecting only the submucous tissue, but towards the pyloric orifice was a complete ring of deposit, which had caused destruction of the mucous membrane so as to leave a large cancerous ulcer. The pylorus was constricted so as

barely to admit the end of the little finger. In the neighbourhood of the stomach were numerous enlarged cancerous lymphatic glands. Several masses of cancer were found in the substance of the liver.

V. FIBRINOUS MOULD OF THE BRONCHIAL TUBES.

Dr Warburton Begbie showed a fibrinous mould of the ultimate bronchial ramifications in a case of membranous bronchitis, where the specimen exhibited and others had been expectorated. The patient was a young woman, twenty years of age, and had been treated in the Royal Infirmary. The case was of special interest, as the patient had suffered from a well-marked attack of diphtheria; well-marked patches had coated the right tonsil and palate. During convalescence she suffered from paralysis of the palate, as indicated by nasal voice and immobility of the velum.

VI. EXOPHTHALMIC BRONCHOCELE.

Dr Warburton Begbie read a paper on this subject, which will be found at page 198 of this Number of the Journal.

The President considered the paper as interesting in itself, and also in connexion with the communication formerly made by Dr Begbie, and with that recently contributed by Professor Laycock. He was glad the paper had been read, as there would now be an opportunity for discussing the various interesting physiological and pathological questions involved.

Dr Laycock thanked Dr Begbie for giving so explicit a statement of his views, and for having tried to reconcile the discordant views regarding the nervous or anæmic origin of the condition in question. Dr Laycock could not, however, give his assent to Dr Begbie's theory, as it was insufficient to explain all cases. For instance, one of the earliest cases is recorded by Parry as having occurred in a very robust person of highly sanguineous temperament; so little anæmia was there in that case that Dr Parry had to bleed: this treatment was successful in curing the disease. We must hold that Dr Parry's description of the case was accurate, and his description was confirmed by the result of the bleeding. This case had struck Dr Laycock much, and he felt sure that it was not one of anæmia. But if we had one case of the kind, he held that the anæmic theory could not be admitted. Dr Laycock was free to acknowledge that anæmia or some morbid condition of the blood was a very common coincidence or predisposing cause. If a person who had a morbid state of the blood was exposed to morbid influences on the sympathetic system, he was very apt to suffer from palpitations and the other concomitant symptoms. Dr Laycock must, however, say, anæmic murmurs were very rare. He spoke advisedly; during all the last winter session he had only met with one case of anæmic murmur. He therefore considered that anæmic murmurs were very rare as compared with organic murmurs, or with cases of anæmia unaccompanied by murmurs. Our notions as to anæmia were very vague,—not so as to cachexia, as Dr Begbie seemed to suppose. Cachexia not only included morbid states of the blood, but of morbid nutrition of tissues, as in syphilis, tubercle, and the like. What was called struma by the Germans was so termed because it was considered an indication of the scrofulous diathesis. Dr Begbie set aside the neurotic origin of exophthalmic bronchocele in so far as disease of the central organ was concerned, but thought that the neurosis was peripheral, that morbid blood acted on vaso-motor nerves. But morbid blood acted on all parts of the body, and the effects were not limited as here to the heart, the thyroid gland, and the eyes. But there was another group of cases not alluded to by Dr Begbie, in which a variety of neuroses were present, of the larynx, the sensory nerves of the upper extremities, or the back. Few were free from them, and these were as important with regard to the theory of causation as the others. Dr Laycock could not therefore agree to the peripheral theory, for he could not see why only one set of vaso-motor nerves should be affected when all were acted on. Dr Laycock would also remark, that Dr Begbie had made a mistake with regard to Bernard's experiments.

He (Dr L.) had not alluded to those specially performed upon the sympathetic in the neck, but those performed last year, when Bernard operated on the first and second dorsal nerves. He stated, that in galvanizing these nerves he produced exophthalmos; thus, it would be observed, not through the sympathetic, but through the spinal system. Another objection of Dr Begbie's was, that if the neurotic theory were true, we ought to have strabismus and other affections of the oculo-motor system. But it must be remarked, that squinting was not a spinal affection in the sense in which we use the term. The nerves influenced in the disease under consideration were sympathetic or spinal nerves. Persons never squinted under the influence of pain, grief, or horror; whereas protrusion of the eyeballs sometimes occurred under these circumstances. Bernard by irritating spinal nerves caused protrusion; squinting, never. If he (Dr Laycock) understood the oculists rightly, no theory of oculo-motor action would explain the exophthalmos; but Mr Turner thought that he had found the cause of the protrusion in the presence of an unstriped muscular structure within the orbit, which had hitherto been overlooked. It could not yet be said with certainty that the protrusion depended upon this structure, but it was certain that physiologists differed as to the origin of the protrusion. Dr Begbie also objected that he had seen no facts showing the influence of central causes upon bronchocele. It was difficult to advance positive facts, but in the thyroid we had a structure analogous to the mamma. The condition of the latter gland changed during pregnancy and after delivery, but by what mechanism did the change take place? But if it was not by a central influence, how was it? How do the uterus and ovaries act upon the mamma if not through a central organ? It was once held that it was through the blood, but this doctrine was now exploded. But if the mamma could be influenced through a central organ, so might the thyroid. It was certain from statistical inquiries (extending over five hundred cases) that less than five per cent. of cases of bronchocele occurred in men; and he (Dr Laycock) apprehended that if we took all cases of enlargement of the mamma, there was not a larger proportion in men. Enlargement of the mamma was not very uncommon in men, perhaps it was not more so than enlargement of the thyroid; he himself had only seen two cases of enlarged thyroid in men. Dr Laycock thought these facts went to illustrate his theory; certainly an influence on peripheral nerves did not explain them. As to the influence of the vaso-motor system on the tissues, Dr Begbie had adopted the current theory as to increase of heat. In his last paper he (Dr Laycock) had tried to show that heat acted on the bloodvessels, and produced increased activity; he did not understand how diseased blood produced a change on the motor system and increased heat, for he believed that increased heat produced increased activity. With regard to the treatment of the affection, Dr Laycock thought digitalis very valuable: when there was a great production of heat, cold would relieve the vascular activity. An analogous condition was sick headache, with increased action of the temporal arteries, where every beat was painful. Here cold, evaporating lotions were found to give much relief.

Mr Spence could not agree with Dr Laycock as to the rarity of enlargement of the thyroid gland in males. Within the last six months he had seen five cases of the kind, one of them one of the largest cases of cystic bronchocele he had ever met with.

Dr Warburton Begbie would not detain the Society by any lengthy remarks. He was not inclined to attach much importance to the case narrated by Dr Parry and referred to by Dr Laycock. Dr Parry had merely seen the disease incidentally, and had given no expression of opinion as to the mode of its production. It was quite true that we did not bleed in anæmia, but it was well known that Marshall Hall had maintained that some cases of anæmia were benefited by bleeding. Dr Begbie still thought that the theory he had supported was the correct one. He had certainly never met with symptoms which would lead him to believe that the disease was central. He was quite sure that the cachexia was in many cases quite the same with anæmia.

Professor Simpson referred to cases where enlargement of the thyroid had occurred during pregnancy and had disappeared afterwards. He also referred to the occasional enlargement of the spleen, in connexion with exophthalmic bronchocele, and mentioned the case of a lady with this affection, where the eyes were extremely protuberant, the thyroid very large, the spleen so greatly hypertrophied that it extended half-way across the abdomen. It was, Dr Simpson thought, worthy of remark, that the thyroid was a ductless gland of the same class with the spleen, the thymus, and the suprarenal capsules, etc. All these structures had been shown by Professor Goodsir and others to be originally developed in the fœtus out of the same embryonic elements, and to be homologically analogous. Latterly the *vena vorticosæ* of the external layers of the choroid of the eye had been added by anatomists to the same category with the thyroid, spleen, etc., in relation, at least, to their vascular peculiarities, etc. Was this homology in the normal development and anatomy of these apparently different structures not the foundation of their simultaneous affection and enlargement in exophthalmic bronchocele? Did their homology explain their pathology?

PROCEEDINGS OF THE EDINBURGH OBSTETRICAL SOCIETY.

SESSION XXII.—MEETING VI.

March 11, 1863.—Dr PATTISON, *President*, in the Chair.

I. EXTRA-UTERINE PREGNANCY.

In the absence of Professor Simpson, *Dr A. Simpson* related the following case:—

The woman was a patient of Dr T. Keith's. She was about forty-five years of age, and usually enjoyed robust health. She had not been pregnant for twelve years; and supposed that the change of life had come upon her. She was confined to bed, with severe pelvic pains. There was a sensitive tumour stretching across the pelvis, and lying between the uterus and rectum. The tumour was of a softish character at some points, and felt firmer at others. It wanted some of the characters of pelvic abscess; but possessed most of those of a pelvic hæmatoma. Suddenly it greatly enlarged in the course of twenty-four hours, and produced very distressing and dangerous symptoms. Dr S. made an opening into the mass through the roof of the vagina, with the hope of affording relief. Several large, old, and recent coagula of blood were discharged; and at last the foot of a small fœtus projected through the opening. With a little care, a slender, early, entire fœtus, with the placenta, was extracted. Where the placenta was seated could not be made out. The patient nearly died after the operation, but she gradually recovered, and is now quite well. He (Dr A. S.) remembered of a case in the hospital where Professor Simpson endeavoured to remove the fœtus, by making an opening through the abdominal wall by means of caustics. The woman sank, and the child was found lying outside the uterus. In early pregnancy she received an injury, and it is possible the uterus might have been fissured.

II. PLURAL BIRTH AND MONSTROSITY,—UNION AT THE VERTICES OF THE HEAD.

Dr Belgrave read a communication on a case of double monster, and showed photographs of it.

On the 4th of April 1855, there were born, in St Petersburg, two living children, who were conjoined by the head, at the vertices, in a very remarkable manner. They were otherwise in the seeming enjoyment of health, and, when not disturbed, gave no unusual signs of suffering. The parents (who, it was reported, were people of rank), from motives which may readily be appreciated, and the more so, when it is remembered that the Russians are a singularly superstitious people, and would not fail to associate an occurrence of this kind

with the idea of evil influence, sent them to the Foundling Hospital soon after their birth.

Up to this time, it is said, they showed no signs of ailment, slept as long as infants usually do, they took the breast vigorously, and all their functions seemed to be normally performed. The servant who took them to the hospital placed them in a basket, which not being sufficiently long to contain them in their natural position, she attempted to fold them side by side, like the blades of a pair of nut-crackers. The bony union of the skull being chiefly confined to one aspect, she was partly enabled to accomplish this, but not without exerting considerable force, and inflicting serious injury upon the parietes of the head. But for this circumstance, it was the opinion of the medical staff of the hospital that there was nothing in the organization of the twins to forbid the hope of regular growth.

This case is, I believe, unique, in so far as it is the only one of which a record has been kept. In the Hunterian Museum in London, there is a specimen of two skulls conjoined in a similar manner, but I am informed it was obtained from a graveyard, and no history of the case is preserved. It is said to have occurred nearly two centuries ago; and, since it, the case I purpose this evening bringing before your notice is the only one recorded.

Upon admission, it was found that the infants were of the female sex; one was fine and full grown,—the other, smaller and not of so healthy an appearance. Their heads were united at an angle of 20 degrees from the median line: one was slightly twisted, so that the "fronto-parietal" suture of one head was opposite the inner canthus of the eye of the other. The two heads together formed an ovoid. In a few places the lines of sutures were marked by shallow depressions, which yielded upon slight pressure by the finger. Posteriorly, and somewhat laterally, there seemed an uninterrupted osseous covering, so that the two heads were evidently joined by bone. They could lie on one side, but with difficulty, and therefore were generally kept on their backs.

They had one nurse, who of course could give the breast to but one at the time. Each child seemed perfect. They exhibited remarkable sympathy with one another, especially in some morbid conditions, and it was even thought that when pain was caused to the one it was felt by the other. This was really not the case; but as the child who was pinched or otherwise disturbed, cried and wriggled about, she hurt her companion by her movements, who then showed signs of pain; she did not, however, give simultaneous evidence of it, as a perceptible interval of time elapsed.

At first their bowels acted regularly; they slept well, generally at the same time, but occasionally one was awake and lively while the other was sleeping. It was particularly remarked that certain unhealthy conditions in the one occurred nearly simultaneously in the other. Catarrh was an exception to this rule. Towards the end of April, an ephemeral eruption appeared on the head and breast of both. Soon after, they suffered from diarrhœa, which at first succumbed to treatment. At length they became feverish, lost their appetite, and became rapidly thinner, and ultimately even convulsions appeared, first in one, and soon after in the other.

The medical staff attributed the meningitis of which they died to the violence inflicted upon the membranes in stowing the children side by side in the basket in which they were brought to the hospital. I think, however, this is not quite correct, for they were tolerably well several days after their admission, and even when I saw them (nearly three weeks after birth) did not show conspicuous signs of indisposition. This accident must undoubtedly have caused some irritation to the membranes of the brain; but I cannot help thinking that the wriggling of the children, and their frequent seemingly antagonistic struggles, must have greatly contributed to promote the same result.

The action of the occipito-frontales muscles was curious to witness; they seemed, as it were, to be striving which could contract the strongest. It gave them an appearance of suffering which was painful to witness. There was a variety of opinion concerning the possibility of separating them. The

difficulty of getting flaps for both was one obstacle; it was proposed therefore to sacrifice one infant in order to provide flaps for the other. Dr Savalskoy suggested that, in order to procure flaps, the skin should be stretched by a string, in the direction of some of the shallow depressions, over the sutures; but the majority of the staff, thinking that the children were too intimately united to render such a plan feasible, discouraged the suggestion.

The post-mortem examination was made at the Medico-Chirurgical Academy, under the superintendence of Dr Platonoff, the professor of anatomy, and a report of the case was subsequently published by Dr Freymann, superintendent of the hospital. The right parietal bone of one skull, widening posteriorly, was articulated to the superior border of the occipital bones of both skulls, and joined to the right parietal bone of the other child's head, the union of the two forming, as it were, one bone.

These bones, thus united, formed the posterior wall of the two heads, the inferior parts of the occipital being as yet ununited to the superior. The other bones of the skull were more regularly organized, though the frontal bones almost exclusively formed the anterior wall of the skulls. The brain of each was perfectly distinct; but they had a dura mater in common, which was thought to account for the remarkable sympathy they exhibited during life, especially in disease.

III. UMBILICAL HÆMORRHAGE.

Dr Thorold read the following case:—

As the subject of my paper has already been twice before the Society, and my information respecting it is unfortunately very imperfect, it would hardly have been worth while to bring it forward again, except for the purpose of eliciting the experience of the Society upon this topic.

The child in question was born on 9th January, and was one of the smallest we have had at the Maternity, weighing only 5½ lbs., and measuring but 15 inches in length at birth. The nurse mentions that at this time it had purple marks the size of a shilling on its front and back. These I cannot say I ever observed myself. It had, however, an unusual growth of hair for so puny a child. It was jaundiced at its birth, and grew yellower every day. Latterly, the conjunctivæ became yellow also, and it passed dark-coloured urine and whitish stools. These last two symptoms I should fancy are not common in infantile jaundice, at least they did not occur in certain cases which fell under my observation, and therefore might indicate unusual severity in this ailment.

On 16th January, when the child was seven days old, there was considerable hæmorrhage from the root of the cord, which was then hanging only by a thread. The blood, rising slowly, appeared in the whole of the lower fossa of the umbilicus almost simultaneously, so that it was difficult to fix precisely upon its source; but it appeared to come from the left side. It was rather dark, however, for arterial blood, and deficient in coagulability. I endeavoured to restrain the hæmorrhage with a pledget of lint dipped in perchloride of iron and glycerine, and afterwards with the same, adjusted more accurately by means of a cork cut to the size of the umbilicus and secured with cross pieces of adhesive plaster and a bandage. The only effectual plan, however, was, one suggested by Dr A. Simpson, viz., stuffing the exact source of the hæmorrhage with a small point of sponge, dipped in the styptic, and packed with graduated dorsils of lint, and secured as before. On the same evening, however, the child began to pass clots of blood from the intestines. Seeing this, I considered further medical treatment useless, and limited myself to maintaining its strength as long as possible.

Next day, the oozing from the cord recommenced, and the child continued to lose blood from both orifices, till early on 19th January, the tenth day of its life and the fourth of the ailment, it died.

A post-mortem examination was performed on the body, but with no very satisfactory result. The umbilical vein appeared to be closed by the contraction of the surrounding tissue. Of the umbilical arteries, one contained a small

yellowish plug, the other a thread of blood somewhat coagulated; both of which soon liquefied. The vessels had the appearance of ending in a common receptacle at the umbilicus; and it is curious that Mr Ray, to whose paper reference will be made immediately, noticed the same appearance in his case, and regarded it as something abnormal. In both instances, however, I am inclined to believe that this was nothing more than would naturally be found when the external portion of the vessels had dropped off, and the internal sheathing of dense tissue and peritoneum connecting them to the umbilicus had contracted. The liver was somewhat darkened towards its anterior edge, and I think on its under surface, so as to have a sort of mottled appearance; but Dr G. Stewart, who kept it for microscopic examination, mentioned that it went to decay very rapidly, so that he was not able to make any special observation respecting it. The bile exuded freely when the gall-bladder was compressed. The intestinal canal contained clots of blood at various points, and a quantity of reddish pulp. The capillaries of the lower part of the large intestine and rectum were partly congested, but the mucous surface presented no signs of lesion. The spleen was large and soft.

In some points this case appears to be rather an exceptional one. Mr Ray, in an article in the Medical Gazette for 1849, which Dr Murray pointed out to me, almost, if not altogether, limits the disease to males, and ascribes to it a tendency to recur in members of the same family. In this case the child was a female, and though the woman had born three children previously, two of whom were boys (though one, having been stillborn, can hardly be taken into account), in none had anything of the kind been observed. The mother stated that she had felt less well during this pregnancy than on previous occasions, and that she had had a weed a fortnight before delivery, but that could hardly have had much to do with it. The father is stated to have had good health.

With respect to the immediate cause of the hæmorrhage, it is said that discharges of blood, either in the way of hæmatemesis or melæna, result pretty commonly from obstruction to the portal circulation. In these cases the spleen, in accordance with its reputed function as a diverticulum for the surplus blood, is frequently found to be enlarged. Whether in this case there was any such obstruction was not ascertained; or whether, again, this could give rise to jaundice, I must leave to others to determine. But such a supposition would afford a rational explanation of all the symptoms. The blood, being retarded in its passage through the liver, engorges the arterial system, distends the spleen, and finds an outlet through the umbilical arteries. When this is closed, its hypinotic condition enables it to escape by way of exhalation, as Dr Watson calls it, through the submucous capillaries of the intestines. It could hardly escape in this way unless its normal constitution were altered. But, according to Dr Wood, bile dissolves the blood-corpuscles; again, the liver being a fibrin-forming organ, derangement of its functions causes the blood to be deficient in this element.

Upon the comparative merits of the various methods of arresting umbilical hæmorrhage, members of the Society will probably be able to speak from personal experience. The plans which appear most reasonable are, *first*, that tried; *secondly*, the plan of sealing up the umbilicus with wet plaster of Paris, which immediately dries and hardens; and, *thirdly*, Dubois' method of transfixing the umbilicus with a couple of needles, placed at right angles to each other, each of which is then entwined with a figure of eight of thread, while the base of the umbilicus is also tightly encircled with a ligature.

Probably these plans would be tried in the order in which they are mentioned. The first answered well in this case; the second was tried with success by Mr Hill, in a case quoted by Edward Ray; the third, according to Burns, is open to the objection of being liable to induce inflammation of the peritoneum. Unfortunately, however, the result varies less than the remedies; for it may be stated, in conclusion, on the authority of Churchill, that these cases have almost always a fatal termination.

Dr Pattison said, that he had seen only one fatal case of bleeding from the umbilicus. He (*Dr P.*) placed much reliance on German tincture as a hæmorrhagic, both in these cases, and for stopping leech-bites.

Dr A. Simpson remarked, that in some children it was impossible to stop the bleeding from the umbilicus. In one child which he had seen, styptics were of no use, and on tying the navel with a needle it sloughed off.

Dr Peter Young said, that the tendency to hæmorrhage exhibited by children was readily explained by the fibrin of the blood being in an imperfect state of development. It was well known that the fibrinogenous material of the blood required to be oxidized before it assumed the coagulating power of fully formed fibrin. In newly-born children the relative amount of oxygen in the blood was smaller than in adults, as was shown by the fact, that in two or three days after birth jaundice of greater or less intensity invariably appears, owing to the bile which begins to be absorbed from the intestines immediately after birth being imperfectly oxidized.

MEETING VII.

April 29, 1863.—*Dr PATTISON, President*, in the Chair.

I. COMPLEX TWIN-LABOUR.

Professor Simpson communicated a case of twin labour, where the heads of the fetuses were locked in the pelvis. The patient had been confined previously three times, and her labour had always been tedious. In this, her fourth confinement, labour commenced about 7 A.M. *Dr Finlay*, when called in, felt the feet presenting. When he (*Dr S.*) saw the patient, the first child was born, with the exception of the head, which was situated in front, and locked into the head of the second child. The head of the second child lay behind in the hollow of the sacrum. The first child was dead, as was to be expected from the prolonged pressure to which its umbilical cord was necessarily subjected. He (*Dr S.*) first thought of decapitating the partially born child, so as to obtain room for extracting the head of the second and still living child. He tried first, however, to effect delivery without any instrumental interference by dragging down the first child. In this he (*Dr S.*) succeeded perfectly; one single strong pull at the extruded body of the first child was sufficient. The children were small. The second child has continued to live and thrive. In cases like the present, he (*Dr S.*), as well as others, had been in the habit of teaching that decapitation of the first child, or extraction with the forceps of the second child, was the proper treatment. This case was interesting, as showing that twins generally become locked when the pelvis is large or the children small, and when consequently there was a chance of getting over the difficulty without any instrumental interference.

II. RECTIFICATION OF FACE PRESENTATION UNDER CHLOROFORM.

William S. Carmichael, Esq., read the following communication:—I attended Mrs — with her first child. On examination, the membranes were found entire, and the presentation not easily to be recognised. I suspected either face or breech. The labour was tedious. I left the patient for some time, and on my return found the membranes ruptured, and the face presenting. Mrs —'s general configuration, and examination *per vaginam*, by which I had found the pelvis narrow, with a hard projecting coccyx, led me to infer a tedious labour, dangerous at least to the child, if not to the mother. I therefore put her deeply under the influence of chloroform, and, finding that I could without difficulty push the head above the brim of the pelvis, I was enabled to rectify the presentation. The labour thereafter was very tedious (in all 36 hours),—so much so, that I had sent for the forceps; but, after waiting some time longer, delivery was accomplished naturally. The nose and both eyes clearly showed the presentation of the face. The urine required to be drawn off for a week, showing the great pressure exercised on the urethra, principally from the projection of the coccyx pressing the head against

it. I think the case instructive, as showing that, by the use of chloroform, administered deeply, a presentation, rendering labour always tedious, and therefore dangerous to the mother, and of increased danger to the child, may by such means be safely rectified.

Professor Simpson remarked, that *Dr Carmichael's* communication was a very important one. Rectification of face presentations had been the subject of a good deal of discussion at various times. We were taught by some authorities that face presentations could be readily converted, within the pelvic cavity, into head presentations, but it had subsequently been thought impossible as a general rule to do this, the mass turned (*viz.*, the head of the child) being larger in one of its diameters than the pelvic cavity in which it was proposed to turn it. There were rare cases where nature had rectified the position. *Dr S.* saw one such case some time ago, with *Dr Paterson* of Leith. He (*Dr S.*) remembered of once rectifying the position of the head, with *Dr Beilby*, before the days of chloroform, when it would have been impossible to have finished the labour before changing the presentation. In that case the head was not descended into the pelvic cavity. Usually, for the reason stated, it is impossible to turn the head in the cavity of the pelvis; you must first push it up to the brim before this can be done.

Dr Pattison said, that he could not turn the last face presentation which he had had.

Dr Burn observed, that face presentations can generally be changed into cephalic presentations; but in the last case which he had had this could not be effected, and the face came down of itself.

III. PHLEGMASIA DOLENS, TERMINATING FATALLY BY PYÆMIC POISONING.

Dr Murray read a communication on a case of phlegmasia dolens.

J. B., æt. 17, entered the Maternity Hospital on the 12th December, in labour with her first child. Patient had always enjoyed good health till the period of her admission. She was safely delivered of a male child, and was rapidly becoming convalescent, when, on the morning of the 22d, she was attacked with a very severe pain in her left knee. Patient could not bear to be moved, and it was with the utmost difficulty the nurse could arrange her bed. I merely ordered warm fomentations to be applied to the knee, and the leg to be kept supported.

23d Dec.—Patient has passed a very restless night; pain in the knee not relieved, but rather worse. Swelling in knee, which is not confined to it, but extends upwards in the direction of the femoral vein. Pulse 120, complains of headache; tongue furred.

24th Dec.—Swelling extended; now embraces the whole thigh; great tenderness in the course of the femoral vein; pulse 120, weak; perspired profusely during the night; complains of sickness. Warm fomentations to be continued, and leg to be kept carefully elevated, and encased in flannel, moistened with acetate of lead and opium fomentations. Patient felt somewhat easier during the day, though she could not bear to be moved, and complained severely whenever any attempt was made to do so. Ordered an opiate draught in the evening (*horā somni*).

25th Dec.—Swelling now involves the whole limb, which presents a white, shining, tense, and glistening appearance; pain in the knee very acute; complains severely whenever the femoral vein is touched, which now feels hard, corded, and rolls under the finger; pulse 120, weak; passed a better night. Lacteal secretion almost entirely suppressed. Continue previous treatment, and draught at night. As patient seemed to be very weak, she was ordered some wine and beef-tea. For the next four days patient continued in much the same state. At the end of three weeks, the swelling of the leg and thigh had very much abated, and the limb had begun to assume a more natural aspect. She, however, still complained of severe pain in the knee, which now exhibited a distinct feeling of fluctuation. At the end of the tenth day from the original attack, the pain became less severe, she complained less, and took

her food with more zest. From this time she continued to improve steadily; her appetite became invigorated. At the end of six weeks, as the patient still complained of her knee-joint, I thought it would be advisable to have her transferred to the surgical wards of the Infirmary, where they are possessed of more appliances for treating such cases. I accordingly sent her to Dr Gillespie's wards, where she was treated with the utmost kindness and skill; and nothing was left undone that could in any way tend to advance her cure or promote her comfort; for which I have to return my most grateful thanks.

With the exception of a certain amount of weakness and depression, arising from protracted illness, combined with want of sleep, patient continued quite free from pain. In regard to the swelling, the limb has resumed its natural appearance, and is reduced to its natural size; the pain in the knee, however, still continues, with marked symptoms of effusion.

On her way to the Royal Infirmary, she unfortunately, from exposure to cold, was attacked with bronchitis, which annoyed her very much, and tended greatly to reduce her strength. From this, however, she made a good recovery, by the kind treatment and attention she received in the Infirmary. The following are the notes of her case after she entered the Infirmary:—

She was admitted on the 29th January, labouring under an attack of acute bronchitis; there was great swelling of the knee-joint, along with effusion; she also complained of a little pain in the hip; pulse 120, weak.

1st Feb.—Complains of great pain in the right mamma, which, on examination, was found to be hard and painful on pressure. Other symptoms the same as previously. The limb was placed in a wire-splint, which greatly relieved the pain.

5th Feb.—Distant fluctuation in the swelling of the mamma, which was opened, when about six oz. of laudable pus were evacuated; great relief experienced; pulse 120, feverish.

15th Feb.—Three fly-blisters were applied to the swelling, without, however, producing any effect. Patient was much annoyed by exhausting sweats at night, for which she was ordered quinine and SO_2 , which had a slight effect. Under this treatment the patient continued gradually to improve, and, in short, seemed to be rapidly becoming convalescent, the appetite being much improved, the night sweats having almost entirely left her, and the pain and swelling in the joint having greatly diminished. With all these favourable symptoms there was, however, one exception, and that was the high pulse, which was never under 100, and frequently equalled 120. While rapidly improving, on the morning of the 9th March she was attacked with severe rigors, accompanied with profuse perspirations. These profuse perspirations and rigors continued almost uninterruptedly, and she gradually continued to sink till the 15th of March, when she expired.

On post-mortem examination, the following were found:—A pint of pus in the knee-joint; cartilages in a state of ulceration; internal condyle in a state of caries; hip-joint cartilages gone; head of femur in a state of caries; bronchitis. There was no trace of disease in the left femoral or iliac vein.

Dr Burn said, that when cases of this kind are bled they generally go wrong, and that, in consequence, bleeding in these cases was never practised now. He (*Dr B.*) had lately seen a case similar to that of *Dr Murray's*. It was a case of placenta prævia. The child was turned, and extracted alive. On the fourth day, the woman complained of pain in the knee, the leg swelled, and the patient died on the tenth day of acute synovitis. There was nothing wrong with the veins.

Dr Simpson said, that he had seen an analogous case, where the woman lived with a stiff knee. In another case, pneumonia came on rapidly after confinement, caused by inhaling very impure chloroform, which contained free muriatic acid; general fever followed, and inflammation in the elbow-joint, leaving a stiff arm. He had seen a case of puerperal inflammation of the ankle-joint, followed by stiffening of the joint for some years. In this instance there was, with the attendant fever, a puerperal ecchyma of the skin, resembling scattered smallpox.

IV. TEDIOUS LABOUR.

Dr Pattison related a case of tedious labour. He (Dr P.) was called to the case on a Monday, and, on examination, found the os the size of a sixpence. Gave her a dose of morphia. On Tuesday, the os was the size of a shilling, and the membrane entire. On Wednesday, the waters had broke, and he (Dr P.) dilated the os with a Keiller's dilator, the size of a dollar, when the right hip was felt. On Thursday the part was hot; the patient was uneasy. After much difficulty, he (Dr P.) succeeded in bringing down one foot and then the other, and at last delivered. The child was large, but dead. It seemed to be a case where the uterus contracted on the child, and prevented its expulsion.

V. PUERPERAL ALBUMINURIA.

Dr Moir communicated a case of puerperal albuminuria. The face swelled, and he gave her potass. acet. and purgatives to keep the bowels in order. Labour came on last Sunday, a month before it was expected. The os was tough and undilatable. After waiting a long time, he (Dr M.) pulled down a foot, and extracted. The child was dead, and the cuticle readily peeled off. The placenta was much diseased, about a third of it being converted into a white hard cartilaginous mass.

Dr Simpson remarked, that the albuminuria was probably the cause of the placental disease, and consequent death of the child. In some patients the albuminuria, placental disease, and death of the child, tended to recur in successive pregnancies in the same mother. Albuminuria was more frequent in first cases, owing possibly to the greater amount of pressure exerted on the kidneys or their vessels, and increased in itself and in its effects with the duration of the pregnancy. Hence depended the propriety of the practice which he had repeatedly used in such cases of the induction of premature labour.

VI. OBSTRUCTION OF THE BOWEL OF AN INFANT.

Dr Murray read the following communication:—On Sunday, 25th April, at 4.30 A.M., a male child was born in the Maternity Hospital. It appeared at birth perfectly healthy, and there did not seem to be any apparent organic defect. It was observed that a large quantity of liquor amnii came away, which had floating in it a large quantity of a thick pultaceous substance, bearing a strong resemblance to "curds" or "dough." About an hour after birth, it began to vomit a considerable quantity of the curdy mass, which bore a strong resemblance to what was contained in the liquor amnii. As we shall afterwards find, the vomiting continued almost uninterruptedly till its death. A few hours after birth, it still continued to vomit this thick pultaceous white substance, which was floating in a fluid menstrium of a dark tarry, brownish-looking appearance. This vomit seemed to pass up without any effort. The interval between the periods of vomiting varied very much, but did not seem to exceed a quarter of an hour, and depended to a large extent on the amount of the food taken. It continued in much the same state all Monday, and whenever any food was given to it, it seemed either unwilling to take it, or when it did swallow any, it generally resulted in its being almost immediately rejected. The brown substance still continued to be vomited. All Tuesday, patient continued in much the same state, without any discharge of meconium having taken place from the bowels, the only substance that came away being the result of an injection, and it did not contain any meconium, but consisted simply of the thick pultaceous white-looking substance similar to what was passed per the mouth. On Wednesday, the child ceased to vomit the white pultaceous substance, and the vomit became of a different appearance; light at first, it became deeper yellow afterwards; still the vomiting continued as frequent as ever during the night, as well as during the day. Thursday, patient continued in much the same state, nothing being yet passed by the bowel. On Friday, the yellow vomit still continued to be passed, and the patient remained totally unable to retain anything on its stomach.

On Saturday, it began to cry, and seemed to suffer much from pain. At intervals it slept, but on awaking it appeared to suffer much from pain. On Sunday, 3d May, the countenance began to assume a jaundiced hue, patient cried a good deal from pain, and continued to vomit the yellow substance all Sunday night; patient continued very restless. On Monday, it was very much depressed and sunken, and had become very much emaciated. On Tuesday, a red spot made its appearance on the abdomen, which was much swollen. On Wednesday, it was very restless, and refused food of every kind entirely, but lay quite quiet and indifferent. It was attacked with fits of a spasmodic character, which continued during the whole night; vomiting had ceased. On the Tuesday, it had become so emaciated that the bowels could be seen moving backward and forward from the passage of fluid, and seemed as if they would burst. On Thursday morning, 5.30 A.M., patient died: twelfth day since its birth.

On post-mortem examination, the first thing which presented itself on opening the abdomen was a dilated condition of the intestines, so situated that I imagined it must arise from the large intestine; but, on examination, I found, first, that the large intestine was quite undilated, and that nothing had passed through it, and that it had the appearance seen in the case of a child that had never breathed. On passing up an injection, it was found that nothing would pass beyond the ileo-cæcal valve. Examining the intestine still further, about an inch upwards from the valve, the ilium suddenly terminated in a blind sac, so that there was about an inch of bowel wanting; there was also a small isolated piece of bowel; and further beyond which there was another absolute want of bowel. The bowel seemed to end in a blind sac. The distended portion of the intestine which ended in a blind sac consisted entirely of a small piece of the small intestine, and its enlargement arose entirely from the distention to which it has been subjected by the inability of anything to pass downwards.

GRADUATION IN MEDICINE AT THE UNIVERSITY OF EDINBURGH.

On the 1st of August, the annual ceremony of Graduation in Medicine took place in the Library Hall of the University, under the presidency of Sir David Brewster, Principal of the University. The following is the list of Graduates, with the titles of their theses:—

*** *Those who have obtained Prizes for their Dissertations.*

** *Those deemed worthy of Competing for the Dissertation Prizes.*

* *Those commended for their Dissertations.*

THE DEGREE OF M.D.

Amy, Frederick, Jersey. On Varicose Veins.

Barry, Joseph Edward, England. On Tracheotomy.

Bell, Alexander Montgomerie, Scotland. On Simple Fractures, and their Repair.

* Beverley, Michael, England. Commentaries on a few Cases in Paton's Ward, Royal Infirmary.

* Boyd, Hugh, Scotland. On Scorbutus; its Nature, Causes, Symptoms and Treatment.

*** Braidwood, Peter Murray, East Indies. On the Development of Striped Muscular Fibre.

Brakenridge, David James, Scotland. On Enteric or Typhoid Fever.

* Cameron, Lewis, Scotland. On some of the Forms of Jaundice.

* Charteris, Matthew, Scotland. On the Cranial Circulation.

10 Coates, Frederick William, England. On Amaurosis.

Craw, John, Scotland. On Veratrum Viride.

Crombie, John Liddle, Scotland. On Diseases of the Rectum.

* Davidson, John Hannah, Scotland. Practical Remarks on the Management of Pregnancy and Parturition; and on the Inflammatory and Febrile Diseases of Puerperal Women.

- * Dickson, Archibald, Scotland. On the History of the Treatment of Delirium Tremens.
- Dickson, John Rogerson, Scotland. Reports on Cases in the Wards of the Royal Infirmary, 1862-63.
- Dickson, William James, Scotland. On Phrenological Doubts and Difficulties.
- Ducat, Andrew David, Scotland. On Otorrhœa.
- *** Duckworth, Dyce, England. Observations on the Anatomy of the Capsulæ Supra-Renales.
- Duncan, Francis Metcalf, Scotland. On Podophyllum Peltatum.
- 20 Dunlop, Andrew, Scotland. On the Ancient History of Medicine.
- Elwes, Charles Walter, England. On Hernia.
- Eshelby, Douglas William, England. On Diphtheria.
- Ferguson, John, Scotland. On Scrofulous Diseases of Joints.
- Finlay, Robert Bannatyne, Scotland. Notes on the Surgery of Hippocrates.
- Gassin, Jean Baptiste Jérémie, Mauritius. On Progressive Surgery.
- Gillespie, James Robert, Canada. On the Changes in the Blood as regards Gout and Rheumatism.
- Goodall, Alexander, Scotland. On Croup.
- * Grosvenor, George Fox, England. On Puerperal Fever.
- Hammond, Gordon, Scotland. On Gastric Ulcer.
- 30* Haynes, Stanley Lewis, England. On Morbus Coxarius.
- Hedley, William Snowdon, England. On Polysarcia.
- * Higginson, Henry Talbot, Ireland. On Light and Heat.
- Jameson, William Hugh, Scotland. On Diphtheria.
- Jeffrey, William, Scotland. On Neuralgia.
- Jobson, William, Scotland. On the Pathology and Analogies of Sinus and Fistula.
- * Lewis, Alfred, England. On Variola.
- Lindsay, Edward, Canada. On Dysentery and its Complications.
- Lisle, Richard Philip, Wales. On the Forces which cause the Circulation of the Blood.
- Lowe, Robert Whittington, Scotland. On Anæsthesia in Midwifery.
- 40 M'Donald, Alexander, Scotland. On the Etiology of Pulmonary Hæmorrhage.
- Mackie, John, Scotland. On Rupture of the Uterus.
- * Main, Alexander James, Scotland. Observations on the Effects of Sulphur in increasing the Sulphuric Acid in the Urine.
- Martin, James, Scotland. On Paralysis.
- Maxham, John William, Canada. On Idiopathic Dyspepsia.
- Melladew, Henry Frederick Lawaetz, England. On Scarlatina.
- Mercer, Nigel Gray, Scotland. On the Pathology and Treatment of the enlarged Prostate.
- Middleton, John, Scotland. On Typhus Fever.
- Millar, John, Scotland. Contributions to Palæophytology.
- ** Millingen, Charles, Constantinople. Contributions to the Histology and Physiology of Insects.
- 50 Moffatt, Paul, England. On the Physiological and Therapeutical Actions of Exercise.
- Nesham, Thomas Cargill, England. On Cancer.
- Packer, James Macnamara, Barbados. On Epilepsy, its Causes and Pathology.
- Potter, John Baptiste, England. On Typhus and Typhoid Fever.
- Pringle, John, Scotland. On Rheumatic Fever.
- Reid, Walter, Scotland. Observations on Smallpox.
- Rhind, James, England. On Injuries of the Head.
- Richard, Robert Angus Campbell, East Indies. On Scurvy.
- * Robertson, John, Scotland. On Rheumatic Endocarditis.
- * Robertson, Robert, Scotland. On the Pathology, Diagnosis, and Treatment of Thoracic Aneurism.

- 60 Ross, David Palmer, Penang. On Gun-Shot Wounds.
 Rutherford, James, Scotland. On the Articulations and Movements of the Human Trunk.
- *** Rutherford, William, Scotland. Researches in Anatomy, Physiology and Pathology.
 Rutherford, Edward, England. On Bronchitis.
- * Sheldon, Thomas, England. On Typhus and Typhoid Fevers.
 Simpson, David James, Scotland. On Syphilization.
- *** Spence, Alexander Ingram, Scotland. On the Mode of Actions of Poison.
 Strachan, John, Scotland. On the Relation between Cardiac and Pulmonary Disease.
 Thurgar, Benjamin Bingay, England. On the Distinctions between Typhus and Enteric Fever.
- * Thyne, Thomas, Scotland. On the Perforating Ulcer.
- 70 Todd, Alexander, Ireland. On the Pathology and Treatment of Ulcer of the Stomach.
 Turner, Richard, Wales. On Heart Disease.
 Tuxford, Arthur, England. On the Causes, Diagnosis, Treatment, and Pathology of Typhus and Typhoid Fevers.
- * Walker, Thomas, B.A. (King's College, New Brunswick), New Brunswick. Notes of Cases from the Royal Infirmary.
- * Watson, James, Scotland. Observations on some New Remedies.
 White, George Rankine, New York. On the Function of Digestion.
 Wilson, James Clark, Scotland. On the Epidermis and its Modifications.
 Wilson, John, Scotland. Observations on Morbus Addisonii.
 Williamson, Ninian Alexander, England. On Hygiene.
 Wood, Thomas Arthur, Isle of Man. Report of Medical Cases, with Commentaries.
- 80 Wright, George Arthur Wellesly, Scotland. On Infanticide.
- THE FOLLOWING CANDIDATES RECEIVED THE DEGREES OF M.B. AND C.M.
- * Davidson, Alexander, M.A. Edinburgh, Scotland. Notes on Heart Disease.
- 82 Wilson, George, M.A. Aberdeen, Scotland. On the Position of the Fœtus in Utero.

ARMY MEDICAL SERVICE.—ASSISTANT SURGEONS.

THE following is a List of the Candidates who were successful at the Competitive Examination in February last, and who have passed through a Course at the Army Medical School:—

<i>Names.</i>	<i>Studied at</i>	<i>No. of Marks.</i>
Edward Chandler.	London.	4935
William Creyk, M.B.	Aberdeen.	4737
Edgcombe Venning.	London.	4500
Alexander Brebner, M.D.	Aberdeen.	4458
William Nash, M.D.	London.	4385
Wm. Edmondson Dudley.	Dublin.	4233
Alexander Doig.	Glasgow.	4125
Henry Arthur Martin.	London.	3980
Wm. West Quinton, M.B.	Dublin.	3959
Geo. Wm. M'Nalty.	Dublin.	3924
Wm. Thomas Martin.	Dublin.	3821
Jno. Norman Davis.	Galway.	3772
Wm. John Page.	Dublin.	3653
Frederick Ferguson, M.D.	Dublin.	3628
Richard Geo. Segrave.	Dublin.	3013

ARMY MEDICAL SERVICE.—EXAMINATION PAPERS.

THE following were the questions proposed at the recent examination of candidates for admission, as Assistant-Surgeons, into the Army Medical Service:—

ANATOMY AND PHYSIOLOGY.—MR BUSK.

Monday, August 10, 1863, from 10 to 1 o'clock.

1. Describe the parts contained in the space bounded above by the lower border of the jaw, below by the os hyoides, behind by a line drawn from the angle of the lower jaw to the extremity of the great cornu of the os hyoides, and internally by the medium line of the neck.

2. Describe the parts concerned in femoral hernia, and the variations to which they are subject.

3. Describe the physiological effects of division or injury of the portio dura above the point where it gives off the chorda tympani nerve.

4. What is the cause of the suffocation which usually supervenes upon division of the inferior laryngeal nerves, or of the trunk of the pneumogastric above those branches? And state which muscles of the larynx are supplied by the superior laryngeal nerve.

5. Give an account of what is known respecting the structure and functions of the lymphatic glands.

SURGERY.—MR PAGET.

Monday, August 10, 1863, from 2 to 5 o'clock.

1. Give some account of the varieties of hydrocele, *i. e.*, of collections of watery fluid connected with the testicle and spermatic cord. Does any similar disease occur in women? If so, what is it?

2. Describe the principal forms of prolapsus ani, *i. e.*, of eversion and protrusion of the lower part of the rectum; and state how you would treat each of them.

3. Describe the ordinary symptoms of dislocation of the head of the humerus downwards and inwards; and state, particularly, the symptoms on which you would chiefly rely for diagnosis in old as well as in recent cases of such dislocation.

4. Describe any three of the modes of treatment for the cure of varicose veins of the leg, and state the merits and demerits of each of them.

5. What are the chief circumstances in which epistaxis occurs, and the best corresponding means of treatment?

6. Make lists of the instruments, and of the materials for the first dressings, required for the operations of amputation above the knee, tracheotomy, and extraction of cataract.

7. Describe the symptoms of "chronic rheumatic arthritis" affecting the hip-joint, and the changes of structure to which it usually leads.

NATURAL HISTORY, ETC.—DR HOOKER, F.R.S.

Tuesday, August 11, 1863, from 10 A.M. to 1 P.M.

[Answer any five or more of the following questions.]

1. To what natural orders do the mints, rue, sabadilla, and squill belong? Give the botanical names and native countries of these plants.

2. Illustrate the phenomena of transpiration, respiration, and absorption in plants.

3. What are the botanical and official characters of the natural orders solanaceæ, umbelliferæ, and cruciferæ?

4. Enumerate the vegetable anthelmintics.

5. What are the properties and characters of starch and gluten?

6. To what class and order of animals does the leech belong? Describe its mouth and digestive system.
7. Enumerate the orders of the classes aves and insecta, and give their characters.
8. Define and illustrate the phenomena of latent heat and specific heat.
9. Why do the density and temperature of the atmosphere diminish in ascending mountains?
10. Construct a galvanic pile, and give the rationale of its action.
11. What are the noxious gases which prevail in badly ventilated localities?
12. Define the terms catalysis, dialysis, fermentation, amalgamation, hybernation, endosmose, crystallization, idiosyncrasy, psychology, ontology.

MEDICINE.—Dr PARKES.

Tuesday, August 11, 1863. from 2 to 5 o'clock.

1. Describe a case of pleurisy in the left side leading to great and long-continued effusion. The course of the disease; the symptoms at each stage; the effects and the treatment must all be given.
2. Contrast the physical signs given by the following diseases—a large weak fatty heart; great hypertrophy of the left ventricle without valvular disease; hypertrophy with obstructive and regurgitant disease of the aortic valves.
3. What are the causes of hæmaturia, and how would you diagnose the source of the blood from the condition of the urine?
4. How would you manage—
 - (1) A breech presentation.
 - (2) Profuse flooding immediately after delivery.
 - (3) Retained placenta.
5. What are the most usual views now held of the nature and consequences of thrombosis and embolism?
6. Enumerate the chief pharmaceutical preparations derived from cinchona bark. Mention the several diseases or conditions in which quinine is found useful, and state what are the best substitutes for it.

CORRESPONDENCE.

(To the Editor of the Edinburgh Medical Journal.)

35 WIMPOLE STREET, LONDON, 27th July 1863.

SIR,—I have only this day seen, in the July Number of the Edinburgh Journal, Dr Watson's Description of an Instrument for Retention of Urine resulting from Narrow and Obsolete Stricture.

In every respect it is identical in construction and form with one used by myself some seven or eight years, and described by me, first in the *Lancet*, June 20, 1857, and subsequently redescribed both in native and in continental journals, as well as in the second edition of my own work on "Stricture of the Urethra," page 181. The engravings accompanying the original and subsequent descriptions also are almost identical with that illustrating Dr Watson's paper. The solid probe-point, the situation of the eye, the increasing size of the stem, are precisely alike in both. A slight advantage exists, I think, in mine, the handle of which is movable at pleasure to any part of the stem, so that it may be used either as a long or as a short instrument.

I am quite satisfied that Dr Watson could not have seen my "Probe-pointed Catheter," as I originally termed it, nor any account of it; and that the appearance of his instrument results from his having overlooked or forgotten mine. I am glad that he has discerned independently, as I have no doubt he has done, the value of the little contrivance which it appears we have both found useful. I am compelled, however, to claim priority in its application.—I am, Sir, your obedient servant,

HENRY THOMPSON.

(To the Editor of the *Edinburgh Medical Journal*.)

16 HOPE STREET, EDINBURGH, 5th Aug. 1863.

SIR,—I have to acknowledge the receipt of Mr Henry Thompson's letter with which you favoured me.

Mr Thompson complains that, in my "Description of a new instrument for the relief of retention of urine in cases of tight strictures of the urethra," which appeared in the July Number of the *Edinburgh Medical Journal* for this year, I have not accorded the priority of invention to his silver probe-pointed catheter, which he first described in the *Lancet* of June 20, 1857.

In reply, let me direct his attention to the simple fact, that probe-pointed silver catheters are no novelty, and that the only novelty in the instrument I described, and to which I lay claim as an improvement, is that it is made of steel.

In illustration of this, I would refer Mr Thompson to my paper, where he will find it stated, "The advantages to be obtained from the employment of this steel probe-pointed catheter are,—1st, That in it we have an instrument which, being made of steel, is thoroughly rigid, and therefore under the control of the operator; 2d, An instrument which to relieve retention possesses all the excellence of the smallest catheter, with, from its probe-pointed extremity, all the facility of introduction presented by the probe-pointed bougie."

As to the question of priority in regard to the use of the silver probe-pointed catheter, the following passage from the Baron Boyer's "*Traité des Maladies Chirurgicales*," vol. ix. p. 231, published in Paris in 1824, seems to settle all modern claims:—

"For the last twenty years, I have used, with the greatest success, *conical catheters terminating in almost a point*, in the treatment of cases in which the urethra is so contracted as to admit neither the bougie nor the smallest catheter. The conical catheter should be of a medium size, with thick walls to prevent its bending against the obstacles which it is intended to overcome. *It should gradually decrease in size from the rings to the opposite extremity, which terminates in a probe point.* The eyes, or lateral apertures, should be situated at the distance of two or three lines from each other, so that the corresponding part of the instrument may not be too much weakened. *That portion of the instrument comprised between the last opening and the extremity of the instrument should be solid, and from four to five lines in length.* This portion of the instrument, which is properly speaking the beak of the catheter, should be more or less pointed, according to the duration and resistance of the obstruction to be overcome. *The stilet of the conical catheter should be large enough to occupy it exactly, so as to increase its strength and make it less liable to bend.*"¹

Boyer was not the first to make use of instruments of this description, for it seems the conical silver catheter was employed at the Hotel Dieu by Dessault, though the invention has also been claimed by Coffinière (1783). This instrument, slightly modified by Roux, was well known in Edinburgh certainly so long ago as 1821, and was designated as Roux's *Sonde conique d'Argent*. In speaking of continuous dilatation of stricture, by keeping a catheter continually in the urethra, Mr Allan, one of the surgeons of the Edinburgh

¹ "Depuis plus de vingt ans j'emploie avec le plus grand succès des sondes coniques presque pointues, pour sonder les hommes dont l'urètre est tellement rétréci qu'il ne peut admettre ni les bougies, ni les sondes ordinaires les plus fines. Les sondes conique doivent être d'un calibre moyen, et avoir des parois très-épaisses, afin qu'elles ne plient pas contre les obstacles qu'elles doivent surmonter. Leur grosseur doit aller en diminuant insensiblement, depuis le pavillon jusqu'à l'extrémité opposée que se termine en pointe mousse. Les yeux, ou ouvertures latérales, doivent être placées à deux lignes de distance l'une de l'autre, pour que la partie de l'instrument à laquelle elles répondent ne soit par trop affaiblie. La partie de la sonde comprise entre la dernière ouverture de l'extrémité de l'instrument, dont être pleine, et avoir quatre à cinq lignes de longueur: cette partie qui est proprement le bec de la sonde, doit être plus ou moins pointue, suivant la dureté et la résistance de l'obstacle que l'on veut surmonter. Le stylet que l'on met dans les sondes coniques, doit être assez gros pour les remplir exactement, afin qu'il ajoute à leur force et les rende moins susceptibles de plier contre l'obstacle."

Royal Infirmary, in his work on Surgery, vol. i. p. 179 (*note*), says—"They (the French surgeons) take a small silver catheter, slightly curved, of a conical shape and pointed form (*sonde conique d'argent*), such as is delineated in the marginal plate. This practice seems to have originated with Paré, who was in the habit of carrying a pointed instrument ("il employait une sonde dans laquelle il y avait un stylet terminé par un bouton aigu") through the obstruction. It was the invariable practice of Dessault at the *Hôtel Dieu*, was afterwards adopted by Boyer at *La Charité*, and is now followed and particularly patronized by his son-in-law Roux."

The *Sonde conique d'argent* of Roux differed from the instrument of Boyer in having the eye nearer the point, thus diminishing the length of the solid or probe-pointed extremity of the instrument; and as thereby it was weakened, this modification cannot be considered as any improvement. I shall have more to say of this instrument immediately.

In referring to Mr Thompson's first edition of his work on Strictures of the Urethra, published in 1854, at page 181, I find that, while he never alludes to probe-pointed instruments, he speaks of conical sounds as being often advantageous in the treatment of stricture of the urethra, and under this head he figures one conical sound, not like Roux's hollow instrument of like name, but a solid instrument of very large size, and two olivary bougies. On turning to a review of the first edition of Mr Thompson's work, which appeared in the April Number of the *Edinburgh Medical Journal* for 1854, I find the following (pp. 443, 444):—"In reference to the diagnosis of the exact position and numbers of the strictures, we observe that Mr Thompson recommends small sounds, with bulbous or olivary-shaped extremities about two sizes larger than the stem;" and from the figures he gives of them, they resemble somewhat and are upon the same principle as the ball-probes recommended by Sir Charles Bell. For the last ten or twelve years (says the reviewer) we have been in the habit of using and recommending for the same purpose small-sized sounds, from No. 1 and two sizes smaller, with probe points: in fact, probes similar in appearance to the pocket-case probe, but of the length of an ordinary sound, and with a flat handle. We have often found them useful in the diagnosis and treatment of very tight strictures, when the ordinary form of sound of the same sizes would be dangerous; and when passed, the slightly bulbous form of the extremity affords on withdrawal an indication of the position of stricture. The instruments figured by Mr T. seem to us objectionable, from the sudden swell of the bulbous extremity, which would require an opening of considerable diameter to allow it to pass. In the second edition of Mr Thompson's work upon Stricture, improving upon this hint given him by his *Edinburgh reviewer*,¹ the description of bulbous sounds and the woodcut in illustration undergo a very great modification; and curiously enough, on the self-same page (181) of the second edition, on which conical sounds were described in the first, there appears the description of the "probe-pointed catheter" invented by Mr H. Thompson. The description is as follows:—"The instrument resembles in form, length, and curve the ordinary catheter, and is made of silver. For the last two inches, however, it is perfectly solid, the extremity being in fact a fine metal probe. . . . The hollow part or channel commences at about two and a half inches from the point, and a small eye is placed on the inner side of the curve. At this part the instrument gradually increases in diameter first to that of a No. 1, and then to that of a No. 2, which latter it continues throughout the whole shaft. The whole is strengthened by a small steel rod or stylet, which accurately fills up the interior."

Comparing this with the instrument he himself described, might not Boyer—or his representative—repeat the words of Mr Thompson's letter:—"The solid probe-point, the situation of the eye, the increasing size of the stem,"—

¹ "Several of the suggestions for its (1st edition) improvement, offered in various critical notices, appeared to be valuable, and have been carried out."—P. xiii., Preface to the Second Edition of the Pathology and Treatment of Stricture of the Urethra and Urinary Fistula. By Henry Thompson, F.R.C.S.

may, more, "the stilet, which accurately fills up the interior," are precisely alike in the instruments of both authors.

But turning to page 195 of the 2d Edition of Mr Thompson's work on Stricture, I find a woodcut of an instrument, to which is appended the following description:—"Fig. 15. —a —a. A No. 1 Catheter, drawn of about half the actual size. The upper or open extremity is enlarged. * Indicates the spot above which the shaft begins to enlarge, as it rises towards the upper extremity; below it the instrument has the uniform size of the register for about 3 inches. The shaft in the instrument here drawn gradually increases in size from No. 1 in this spot to nearly No. 3, at the opposite end, by which additional stability is gained. . . . I have frequently experienced—and I doubt not others have also—considerable inconvenience from some bending of the shaft, while employing catheters of minute calibre (for being hollow their metal must necessarily be extremely thin); an occurrence which more or less injures the instrument, and deceives the operator: and I have therefore found it useful to employ for the No. 1, and two sizes smaller which I use, instruments of which the shaft is equal in size to that of a No. 2, the latter 3 or 4 inches of the instrument only being of the size indicated by the register. This plan of construction gives firmness to the instrument, while it in no way interferes with the passing of that part of it which has to be introduced through the obstruction into the bladder."

What is this but precisely in all respects the *sonde conique d'argent* of Roux? Both Boyer and Roux, were they alive, must have felt the flattering appreciation of their little contrivances by a foreign surgeon, who, without acknowledgment, has thus adopted them as his own.

The confusion on the part of Mr Thompson, as to the real source of probe-pointed instruments for the treatment of stricture of the urethra, may perhaps be accounted for by the fact, that Mr Thompson visited Edinburgh in 1852, when he made the acquaintance of the staff of the Surgical Hospital of this city, well versant with these things, and from the opportunities he then had afforded him, he acquired much of the sound practical information which has gained for his Essay on Stricture the position it now occupies.

Let me, in conclusion, state wherein my instrument differs from that of Mr Thompson.

1. It is made of *steel*,—not *silver*.
2. The eye is situated *laterally*,—not *in the hollow of the curve*; and therefore not so likely to weaken the instrument.
3. The *eye* is situated in my instrument *one inch and a half*, not "*two and a half inches*" from the point, as in Mr Thompson's.

I have the honour to be, Sir, your obedient Servant,

PATRICK HERON WATSON.

THE EFFECTS OF MORMONISM.

By CHARLES H. FURLEY, M.D., Assistant-Surgeon, U. S. Army.

ON a recent visit to Salt Lake I had good opportunities for observing and inquiring into the effects of polygamy, as practically exemplified in the case of that people. While sojourning there I mingled much amongst them, visiting them in their homes, and seeing them at their public assemblies and places of business and pleasure; wherefore, I feel qualified to speak of the results of their peculiar institutions, both in their social, physiological, and intellectual bearings.

A marked physiological inferiority strikes the stranger, from the first, as being one of the characteristics of this people. A certain feebleness and emaciation of person is common amongst every class, age, and sex; while the countenances of almost all are stamped with a mingled air of imbecility and

brutal ferocity. This, in fact, is their true character; they being obsequious and yielding to their superiors—to strangers sullen and spiteful, while among themselves they are cold and unamiable. In the faces of nearly all, one detects the evidences of conscious degradation, or the bold and defiant look of habitual and hardened sensuality—the women, with but few exceptions, shrinking from the gaze of the stranger, as if fully alive to the false and degrading position they are forced to occupy. Some seem overwhelmed with shame: others wear a forlorn and haggard appearance, while a few put on a cheerful air, affecting to be satisfied with their sad condition.

Without entering into minutiae, I may instance the following as a few of the bodily peculiarities that strike the medical man in mingling with the inhabitants of Salt Lake City:—Besides the attenuation mentioned, there is a general lack of colour—the cheeks of all being sallow and cadaverous, indicating an absence of good health. The eye is dull and lustreless—the mouth almost invariably coarse and vulgar. In fact, the features—the countenance—the whole face, where the divinity of the man should shine out, is mean and sensual to the point of absolute ugliness. I have nowhere seen anything more pitiful than the faces of the women here, or more disgusting than the entire appearance of the men. It is a singular circumstance that the physiognomical appearances of the children are almost identical. The striking peculiarity of the facial expression,—the albuminous types of constitution, the light-yellowish hair, the blue eye, and the dirty, waxen hue of the skin,—indicate plainly the diathesis to which they belong. They are puny and of a scorbutic tendency. The external evidences are numerous that these polygamic children are doomed to an early death,—the tendency to phthisis pulmonalis being imminent and noticeable.

The evidences of natural degeneracy are more palpable in the youthful than in the adult population; the evils of this pernicious system not having taken full effect upon the latter. A more feeble and ill-looking race of children I have not met with, even among the vice and squalor of our larger cities. One looks in vain for those signs of constitutional vigour and sturdy health common to the juvenile portion of what may be considered but a country town. So far as food, climate, and other external causes are concerned, the children, as well as the adults here, are favourably circumstanced; their sanitary conditions are generally good: wherefore, we must look to the evils engendered by their religious and social system for the agents of this physical inferiority.

The Mormon, with few exceptions, is low-bred and vulgar. Dancing is his favourite amusement,—forming, in fact, not only a pastime, but a part of his religious exercises. His conversation is of the most simple and commonplace character. His thoughts never soar above his amusements or domestic affairs. He deals in the gossip and scandal of his neighbourhood. The Mormons, of both sexes, are an ill-looking set, and when we have said that they are frugal, industrious, and content, we have enumerated about all the virtues they can claim, or that we can conscientiously concede to that wretched system of degradation known as Mormonism.

Under the polygamic system, the feeble virility of the male and the precocity of the female become notorious. The natural equilibrium of the sexes being disturbed, mischief of this kind must ensue; as a consequence, more than two-thirds of the births are females, while the offspring, though numerous, are not long-lived, the mortality in infantine life being very much greater than in monogamous society, and, were it not for the European immigration, the increase of inhabitants would be actually less than in Gentile communities. The fecundity of the women is remarkable, as might be expected, considering that the husband cohabits with the wife only at such periods as are most favourable to impregnation.—*San Francisco Medical Press.*

THE LATE LORD CLYDE.

THE sad illness which has robbed the country of one of its noblest heroes undoubtedly arose from the toils and hardships of his soldier life. It was no mere "atrophy" of the frame, such as enervating old age brings to the idle as to the bold in arms; and it is just that we should say it, for it seems only to add another though a mournful claim to our tender reverence and high regard for this simple-hearted and devoted soldier, to know that in his death he paid the debt of injuries self-inflicted on his health by hard service to his country. Lord Clyde was naturally of a very vigorous constitution, and immense chest development in proportion to his height. During the Indian mutiny campaign in Oude, he was thrown violently from his horse, dislocated his right humerus into the axilla, fractured a rib, and suffered afterwards some inflammation, both pleuritic and pneumonic. He never felt thoroughly well since that accident. After his return to England he had two or three attacks of congestion of the lungs, associated with bronchitis and enfeebled action of the heart. One of these attacks preceded his late fatal illness. During his last sickness he was attended by the medical officers of the Chatham garrison, Surgeon-Major Summers (Royal Engineers) being, we believe, in immediate medical charge, assisted by a daily consultation with the principal medical officer and others. Prof. Longmore, Mr. Cutler, and Dr Watson paid some visits during the course of the illness.

Their opinion pointed but too clearly to the fatal result. The chief symptoms indicated fatty degeneration and dilatation of the heart, but without any apparent valvular disease; imperfectly aerated blood, and consequent disturbance of the brain and mental functions, with œdema, orthopnea, and restlessness: these were the sure forerunners of the end. And, in fact, the disease consisted of general enlargement as to weight and bulk of the heart, fatty degeneration, and dilatation of the auricles. It was obvious that the duration of the disease was upwards of two years. Lord Clyde died, not from the wasting atrophy of age, but as directly in the service of his country, and from the weight of the heavy toils and great blows which he bore in that service, as though he had fallen on the very field of one of those battles in which he so often led to victory.—*Lancet*.

FORFARSHIRE MEDICAL ASSOCIATION.

THE Fifth Annual Meeting of this Association was held in the County Hotel, Forfar, on Thursday the 30th July,—Dr Steel, Forfar, president for the year, in the chair. There were present—Drs Steel, Smith, Ketchen, Alexander, and MacLagan, Forfar; Christie, Crockatt, Pirie, Grant, Miller, and Macdonald, Dundee; Lawrence, Howden, and Watson, Montrose; Guthrie, senior and junior, Brechin; Key, Wannan, and Dewar, Arbroath; Paton, Letham; Dickson, Carnoustie; Simpson, Marykirk; and Foreman, Fettercairn. Dr Warburton Begbie, one of the physicians to the Edinburgh Royal Infirmary, and Lecturer on the Practice of Medicine in the Extra-Academical School, was also present as an invited guest. Dr Matthews Duncan, to whom an invitation had also been addressed, was unavoidably prevented from being present as he had intended.

It was decided to hold the next Annual Meeting in Dundee, and not later than the middle of July.

The following office-bearers were appointed for the ensuing year:—Matthew Nimmo, Esq., Dundee, president; W. L. Gibson, M.D., Dundee, Alex. Guthrie, Esq., Brechin, vice-presidents; Geo. C. Pirie, M.D., Dundee, treasurer; J. W. Miller, M.D., Dundee, secretary.

Dr Christie, Dundee, moved, and Dr Guthrie, sen., Brechin, seconded, "That the members of this association have seen, with much regret, the distress and annoyance to which Dr Waters of Chester has been subjected in the late shameful action, against which he has had to defend himself in the law courts,—sympathize deeply with him, and much admire his manly conduct in reference thereto; and that the sum of three guineas be forwarded from the

funds of the Association to aid in defraying his legal expenses." This motion was carried unanimously.

It was agreed to memorialize the British Association in support of the invitation to that body to hold its meeting for 1864 in Dundee.

Dr Steele, president, then read a paper on "The Change of Type which has taken place in Fevers and some other acute Diseases during the last Forty Years," which, at the request of the members, he agreed to publish in the *Edinburgh Medical Journal*.

UNIVERSITY OF ABERDEEN.

DR JOHN STRUTHERS, Edinburgh, has been appointed Professor of Anatomy in the University of Aberdeen, in place of Dr Lizars, who has resigned in consequence of advanced years.

MEDICAL SCHOOL, SURGEONS' HALL, EDINBURGH.

DR P. D. HANDYSIDE, F.R.S., F.R.C.S., has been elected to the Lectureship of Anatomy in the Medical School, Surgeons' Hall, in place of Dr Struthers, appointed Professor of Anatomy in the University of Aberdeen.

SIR P. DUN'S HOSPITAL, DUBLIN.

DR WILLIAM MOORE has been elected Physician-in-Ordinary to Sir P. Dun's Hospital, Dublin.

PUBLICATIONS RECEIVED.

- Boston Society for Medical Improvement, Extracts from the Records of. Vol. v.—No. 1. Boston, U.S. 1863.
- Dundee Royal Asylum for Lunatics, Forty-third Report of.
- Gamgee,—Diseases of Animals in relation to Public Health and Prosperity. By John Gamgee. Edin. 1863.
- Hammond,—A Treatise on Hygiene with Special Reference to the Military Service. By W. A. Hammond, M.D. Philadelphia.
- Jackson,—The Influence of Weather upon Disease and Mortality. By R. E. Scoresby-Jackson, M.D., F.R.S.E. Edin. 1863.
- Mackenzie,—Statistical Tables of the Patients in the London Hospital during 1862. By Morell Mackenzie, M.B. Lond.
- Milne-Edwards,—Manual of Zoology. By M. Milne-Edwards. Translated by R. Knox, M.D. Second Edition, edited by C. Carter Blake, F.G.S., etc. Lond. 1863.
- Storer,—Artificial Dilatation of the Os and Cervix Uteri. By H. R. Storer, M.D. Boston, U.S. 1863.

PERIODICALS RECEIVED.

- Births, Deaths, and Marriages, Monthly Return of, for June and July; Quarterly Return, ending June 30, 1863.
- British and Foreign Medico-Chirurgical Review,—July. London, 1863.
- British Medical Journal,—June 27, to Aug. 22. London, 1863.
- Bulletin Générale de Théraputique,—Liv. 9—12. Paris, 1863.
- Dublin Medical Press,—July 1, to Aug. 26, 1863.
- Dublin Quarterly Journal of Medical Science,—August 1863.
- Gazette des Hôpitaux,—Nos. 73, to 79, 80 (twice), 82, to 98. Paris, 1863.
- Gazette Hebdomadaire de Médecine, etc.—June 26, to Aug. 21. Paris, 1863.
- Gazette Médicale d'Orient,—June, July. Constantinople, 1863.
- Gazette Médicale de Paris,—Nos. 26, to 34. 1863.
- Henke's Zeitschrift für die Staatsarzneikunde,—No. 2. Erlangen, 1863.
- Glasgow Medical Journal,—July 1863.
- Journal de la Physiologie (Brown-Séquard's),—January. Paris, 1863.
- Journal de Médecine et de Chirurgie,—July and August. Paris, 1863.
- Journal für Kinderkrankheiten,—March and April. Erlangen, 1863.
- Journal of Mental Science,—July. London, 1863.
- Medical Critic and Psychological Journal,—No. 11, July. London, 1863.
- Medical Times and Gazette,—June 27, to Aug. 22. London, 1863.
- Madras Quarterly Journal of Medical Science, Nos. 10 and 12. October 1862, April 1863.
- Revue de Théraputique Medico-Chirurgicale,—July 1, 15; Aug. 1, 15. Paris, 1863.
- Vierteljahrsschrift für die praktische Heilkunde,—Vol. 2. Prague, 1863.
- Virchow's Archiv,—Vol. 27. Berlin, 1863.
- Wochenblatt der Zeitschrift der Aerzte,—Nos. 21 to 28. Vienna, 1863.

Part First.

ORIGINAL COMMUNICATIONS.

ARTICLE I.—*Substernal Aneurism: its Relation to Disease of the Heart.* By Dr A. H. DOUGLAS, Fellow of the Royal College of Physicians; Physician to Chalmers's Hospital for "Sick and Hurt," Edinburgh; formerly Physician to the Royal Infirmary.

It is with reference to their early diagnosis that thoracic aneurisms are chiefly interesting to the practitioner. Their early treatment is desirable; and it is pre-eminently true of aneurisms as it is of diseases of the heart, that mistake is not more apt to occur in the early stage, than mismanagement to be hurtful: the measures suitable to other affections of the chest are singularly inappropriate to cases of aneurism.

In writing on this subject, my principal object is to illustrate the grounds on which the diagnosis of thoracic aneurisms usually rests. Recent writers have indicated a disposition to bring different classes of symptoms into a kind of antagonism, setting one means of diagnosis against another, when really none can be dispensed with, and each is important. I think, too, that there is a tendency to forget or overlook the results of past experience; for, in point of fact, some of the most reliable means of diagnosis have been settled long since by the distinguished cultivators of this branch of pathology.

It is no part of my plan to attempt a complete review of the relations or diagnosis of thoracic aneurism. Various attempts of this kind have been made; but in a great measure these resolve themselves into fragmentary illustrations of the subject. Probably the best attempts of this kind are to be found in the recent statements given by Dr Stokes and Dr Walshe in their masterly books on the diseases of the heart. I find, however, that I have been led into the discussion of the correlation of disease of the heart and arteries; and I propose to dispose of this before writing what I have to say on the questions of diagnosis.

In not a few cases of aneurism, the diagnosis will be assisted by observing the co-existing lesions of the heart, lungs, etc.; but the relation of aneurism of the aorta to disease of the heart has an important reference to the pathology of aneurism. In this place I may state the following as among the more weighty considerations connected with the subject.

A diseased state of the arterial coats often exists in conjunction with hypertrophy of the heart; and there is reason to think that the disease of the arteries may affect the system extensively, and that the aorta may become dilated.

The diseased condition of the arteries necessarily impairs the elasticity of their coats; and hypertrophy of the heart may arise as the consequence of their impaired tonicity.

Thus, aneurism of the aorta and hypertrophy of the heart may co-exist as the effects of a common cause.

The co-existence of aneurism of the aorta and disease of the heart is recorded by many writers as of frequent occurrence; but the inquiry into their mutual relation is disposed of in a sentence by even our best authors. Dr Walshe,¹ in his most admirable chapter on aneurism, says,—“The heart may become hypertrophous, especially if the sac originate near the sigmoid valves; but such effect is by no means constant. I have known its size fall quite within the limits of healthy bulk under the circumstances.” Dr Stokes² holds that the occurrence of hypertrophy is accidental; “and hence we commonly find a healthy heart co-existing with a vast aneurism.” On the other hand, an apparently opposite and yet a not really inconsistent view of the question is given by Rokitansky³:—“Large aneurisms on the trunk of the aorta have a tendency to produce active dilatation of the heart, and this tendency is the more marked in proportion to their vicinity to that organ. They give rise to this disease either in association with insufficiency of the aortic valves—which is, however, generally the case—or independently of this affection.” Elsewhere he puts the matter even more strongly. “Large aneurisms of the aorta give rise to consecutive disease of the heart in the form of dilatation, with a readiness proportional to their vicinity to the heart. It is, therefore, in consequence of the venosity and cyanosis occasioned by the latter disease that aneurism of the aorta affords a decided immunity against tuberculosis.”

Of the two former quotations, I may be permitted to say that they present a very partial view of the subject. In the statement by Rokitansky there is a singular want of precision, involving, indeed, the whole subject in obscurity and confusion. It is with diffidence I call in question the views of one so learned and so justly held in reputation, but surely there is a singular looseness in the argument that would ascribe the absence of tubercle in cases of aneurism to dilatation of the heart, which it is admitted results from co-existing disease of the valves. In short, this distinguished pathologist appears to ascribe dilatation, venosity, and

¹ Practical Treatise on the Diseases of the Heart and Great Vessels. 3d Edit. 1862. P. 472.

² The Diseases of the Heart and Aorta. 1854. P. 579.

³ Pathological Anatomy. Translated by Dr Day. Vol. iv. pp. 289 and 296.

consequent immunity from tubercle, equally to aneurisms of the aorta and disease of the valves.

The apparent differences in the statements of these authors, I believe, originate in the different descriptions of cases on which they have founded their reasonings. I am the more disposed to take this view as my own observations have led me to think that cases of aneurism differ from each other in their essential or accidental relation to disease of the heart.

Before I proceed to the illustration of the more immediate subject of this part of my paper, I wish to restate a doctrine which lies at the foundation of all my reasonings, viz.,—That the pathological effects of disease of the heart depend chiefly upon hypertrophy and dilatation of the organ. The effects of chronic endocardial and exocardial lesions are physical and local. They do not exert any specific and essential action on distant organs or on the system at large; their primary action is on the muscular substance of the heart. Consecutive hypertrophy arises from the effort of nature to obviate the pre-existing difficulty of the circulation; and, at a subsequent stage, and in unknown states of the system, the increasing capacity of the cavities of the heart, associated or not with an altered condition of the muscular fibre, at length establishes a preponderating dilatation—the immediate consequence of which is embarrassment, obstruction, and venosity of the circulation; and, practically, the effects of a dilated hypertrophy are the same as if the case were simply one of dilatation.

This doctrine was an old one when I endeavoured to illustrate it in the year 1850 in the pages of this Journal. Subsequent experience has increased my confidence in the view that dilatation is the natural termination of all cases of disease of the heart; and that hypertrophy is the result of nature's effort to counterbalance an existing difficulty in the way of the circulation. Moreover, this theory receives confirmation from the history of thoracic aneurisms.

A large number of cases of aneurism of the aorta are accompanied by disease of the aortic valves. Indeed, this is the most intelligible link between co-existing aneurism and disease (*i. e.*, dilatation) of the heart. The disease of the valves and that of the artery have a common origin in coincident atheroma or other lesion of the parts. Accordingly, it is in some sense true that aneurisms situated near the commencement of the artery are associated much more frequently with valvular disease than when the more distant parts of the artery are affected. Now, in such circumstances, the arterial aneurism really has no appreciable relation to the consecutive disease of the heart, which results here, as in simpler cases, from the valvular disease. I shall not multiply cases of this sort: it will suffice to narrate the one that follows.

CASE I.—Mrs —, æt. 53, placed herself under the care of my late friend, Dr Richard Mackenzie, in March 1850. When consulted by Dr Mackenzie, I found the patient in great anguish from dyspnoea, cough, and angina pectoris.

She was sitting up, stooping forwards, in bed. She had fixed substernal pain, and pain lancinating to the right shoulder. The action of the heart was tumultuous.

History.—The existing symptoms had been increasing steadily since the preceding autumn, and for some time the slightest effort brought on an attack of angina. Her breath and the heart's action had been liable to disturbance for two years. Chronic articular rheumatism had existed, but there had been no acute attack.

Physical Signs.—There was fulness, without tumour, in the sternal notch. The impulse of the heart was diffused and feeble, and the pulse was small, soft, and irregular. The precordial dull space was increased, especially in the transverse diameter, and to the right of the sternum. On the upper bone of the sternum there was dull percussion in a space one inch in transverse diameter. The sounds of the heart were confused,—the second superseded by a murmur loudest at the base. Upwards on the sternum, the first sound acquired a murmurish character.

Progress.—The patient lived six weeks. Slight œdema occurred; dyspnoea became aggravated, with the sound of obstructed expiration. Leeching and stimulants gave temporary relief, and the patient died after two days of peculiar anguish.

Post-mortem Examination.—The heart was bulky, globular, and distended with blood. Both ventricles dilated; the apex cordis was formed by the right. The ascending and transverse portions of the arch of the aorta were dilated, the circumference being five inches. The aortic valves were puckered and insufficient. The aorta was extensively atheromatous; and an aneurismal sac the size of a filbert communicated with the transverse portion of the arch by an orifice, a quarter of an inch in diameter, in the posterior wall. The tumour rested on the trachea, causing a bulging in its interior. The vagus and recurrent nerves were traced; and the left recurrent was found embedded in a dense semi-fibrous mass, which had suppurated along the course of the nerve, and which densified the parts around the tumour, compressing the trachea.

I shall not discuss at present the different questions suggested by this case. It is narrated as illustrating the condition commonly met with, in which the valves participate in the contiguous disease of the artery. In determining the antecedence of the aneurismal, the valvular, or the cardiac lesion, a good deal must be left to conjecture; the priority of these lesions will be indicated better by reference to the history and symptoms of the case,—the anatomy only shows their co-existence. The view I take of the case is, that the combined disease of the artery and of the aortic valves was of long standing, and had originated in the rheumatism which had become her constitutional habit; that about two years before death, disease of the muscular substance of the heart began to declare itself, with the formation of a gradually preponderating dilatation, which became fully developed subsequently to the preceding autumn. About that time she first experienced a more or less complete incapability for exertion; the angina became easily excited; she subsequently suffered from tumultuous action of the heart, dyspnoea, venosity of the blood, and, later, from dropsy, with transversely extended dull percussion, and extended, but feeble, impulse of the heart. The dilated hypertrophy was, doubtless, consecutive to the lesion of the valves and artery; but what part each of these had played cannot be affirmed. It is not improbable that peripheral

dilatation of the aorta will be found in some cases to have an influence in superinducing consecutive disease of the heart. In the preceding case, however, the results were not different from what is seen in cases of simple valvular insufficiency; and I ascribe the dilated hypertrophy to that lesion.

There is no evidence that the aneurismal sac in front of the trachea had recently undergone any enlargement. The increased pressure on the trachea, which became so distressing before death, was not improbably connected with the suppuration in the densified tissue surrounding the sac. The pressure of this tumour was doubtless the cause of the persistently obstructed expiration during the last fortnight, and to it I ascribe her usual posture,—stooping forward in bed. The peculiar angina might be connected with the disease of the aorta; but in some cases of dilated hypertrophy of the heart there is an anguish for which we have no other name.

It is unnecessary to insist that, in this case, and in many such, not the aneurism, but the valvular disease, with its consecutive hypertrophy and dilatation of the heart, was the source of the obstructed circulation that characterized the case in its leading symptoms and mode of death.

Cases have come under my notice which lead me to think that consecutive hypertrophy and dilatation of the heart are more apt to occur in conjunction with dilatation of the aorta (that is, uniform or peripheral aneurism) than in cases of sacular aneurism. It will appear in the sequel that this inquiry involves different questions which have an intimate connexion. There is the question of the capability of the dilated state of the aorta to act mechanically or otherwise on the muscular substance of the heart; and there is that of the relation of the disease of the general arterial system to that of the aorta and the muscular substance of the heart.

The following case illustrates very well the relation of hypertrophy of the heart to disease of the arteries and apoplexy. I take the case as an average specimen of a large class; and though there is difficulty in determining the sequence of the principal lesions, the class of cases affords good ground on which to rest this inquiry. The case presents features of interest in other respects, to which I shall have occasion hereafter to refer.

CASE II.—*Hypertrophy of the Heart; Dilatation of the Aorta; Disease of the Arterial Coats; Bronchitis; Cerebral Apoplexy.*

Walter Dairsie, æt. 50, a saddler; admitted under my care in the Royal Infirmary, 11th January 1848. A robust man of short stature, and temperate.

He applied for advice on account of dyspnoea; sense of oppression of the chest; cough, and increasing weakness. His breathing was slightly laboured, and wheezing in expiration. He had no pain.

History.—He had been attacked eight months previously with acute chest symptoms after exposure. On recovery, he suffered little for about six months; but then he felt unable for work owing to dyspnoea and debility. He had had an attack of acute rheumatism many years before, but regained perfect health.

Physical Signs.—The precordial dulness extended from the third left rib, and from the right margin of the sternum five inches in vertical as well as transverse diameter. The upper part of the sternum was dull on percussion. The impulse of the heart was increased in force, and, at the top of the sternum, there was perceptible a sense of the flap corresponding to the second sound of the heart. The *apex cordis* beat in the fifth intercostal space nearly five inches to the left of the mesial line. The heart-sounds were free from murmur; the second was intensified, and had a hollow ringing tone most marked over the course of the aorta. The sternal end of the right clavicle pulsated synchronously with the ventricular systole; the arterial pulse was visible—60 in the minute.

The murmur of respiration was mingled with copious purring mucous rattle in the dorsal regions.

Progress and Treatment.—He was discharged from hospital, and re-admitted again and again; and took little care of himself when out.

In March he was attacked suddenly with vertigo, incomplete insensibility, and imperfect paralysis of the left limbs and right side of the face. He was bled to 30 oz., and he revived shortly. At this date, a murmur was recognised with the first sound of the heart along the course of the aorta. He rallied for a time from this attack, but soon lapsed into a state of lethargic imbecility, and gradually lost ground.

He had a good deal of cough, with expectoration. He became subject to paroxysms of dyspnoea, chiefly at night, which gradually became more frequent. Latterly, dyspnoea became permanent, not urgent; and slight œdema occurred. During the earlier paroxysms he was repeatedly cupped with relief; and tartar emetic was well borne. The impulse at the top of the sternum never increased; and the first-sound murmur was at times wanting.

Post-mortem Examination.—The volume of flesh was small. There was slight œdema of the right arm. The heart was bulky, firm, well formed and contracted; it weighed 27 oz. The valves were normal. The endocardium of the left ventricle presented a few atheromatous patches. The aorta was roughened internally by atheroma; and it had a diffused pouch-like dilatation at the commencement of the ascending arch, in the convexity. The circumference measured 4½ inches. Hypertrophy was less apparent in the right ventricle than in the left.

Both pleuræ were partially adherent, and contained a little serum: the right was coated with recent lymph. Lungs gorged.

The arteries of the brain were rigid, calcareous. The lateral ventricles contained two ounces of limpid serum. In the right optic thalamus, there was an old cyst, containing a dark-coloured areolar tissue.

The liver and kidneys were healthy.

Such cases as this are met with very frequently; and I fancy that the usual explanation of them is, that the aneurism or dilatation of the aorta is the effect of the hypertrophy of the heart. I shall not disturb this view of the case; but it leaves altogether out of view considerations of great interest, which tend to throw additional light on the mutual relations of aneurism and disease of the heart. This case, and innumerable others of the same description, illustrate the twofold reference of cerebral apoplexy to disease of the arteries and to hypertrophy of the heart. I do not think it is necessary to maintain, with Rokitsansky, that "the occurrence of hæmorrhage in the brain is entirely mechanical," or that "all the predisposing causes are mechanical;" but it will be found in a large proportion of cases of apoplexy in which disease of the cerebral arteries exists, that there is also hypertrophy of the left ventricle, and, though their co-existence should prove less frequent

than I think it is, still an important and a practical question arises, viz. :—What the mutual relation of the two lesions is. Now, if it can be made out that the arteries of the system at all generally partake in the altered state so often presented by the cerebral arteries in conjunction with hypertrophy of the heart, then it appears to me that an important point is gained in explaining the relations and pathology of hypertrophy, with reference especially to the mutual relation of arterial aneurisms and disease of the heart.

I am not aware of any observations that conclusively prove one way or other the state of the systemic arteries in such cases; but there is a proof in the state of the arterial pulse which will aid us in the inquiry. The importance of a visible state of the arterial pulse as a sign of hypertrophy of the left ventricle was pointed out by Dr Henderson nearly thirty years ago; and, after an experience of twenty years, I regard it as a reliable indication of the lesion. I do not remember to have seen any explanation of this state of the arterial pulse; but I fancy the one usually received is, the increased action of the left ventricle. It is probable, however, that in many instances the visible pulse, in its abnormal degrees, is closely connected with an altered condition of the coats of the arteries, and that it may be received as a symptom of a decrease of their elasticity, as well as of increased force of the heart's action. Besides, there are not wanting cases to prove that the arteries may pulsate visibly, and may become tortuous from disease of their coats, though not accompanied by any great degree of cardiac hypertrophy. Now, if an altered state of the arteries, as indicated by this visible state of the pulse, be so frequent, if not invariable, an attendant of cardiac hypertrophy, and if the disease do at all usually extend to the arteries generally, it will be admitted that we have a state of matters fitted to exert an influence on the heart, exactly in proportion to the part taken by the healthy arteries in the circulation of the blood. And, here, let me suggest, that the effect produced on the heart by diseased arteries probably does not depend on the degree of the change their coats have undergone so much as on the extent to which they are affected. Indeed, it will be enough that the elasticity of the coats be at all extensively impaired. For, though the elasticity and action of an individual artery may be insignificant, the impairment of this function throughout the system must cast no inconsiderable burden on the left ventricle.

We perceive thus a twofold condition of the arteries, each having direct reference to the state of the heart, viz.,—such an alteration of the coats of the aorta and other arteries as impairs their elasticity, and may excite hypertrophy of the heart; and a dilated condition of the aorta, partial or peripheral, which may be the effect of the cardiac hypertrophy.

In cases in which a partial dilatation occurs, as in the one narrated, in the greater curvature of the ascending aorta, it is difficult to escape from the conclusion that it is superinduced by

the overaction of the hypertrophied left ventricle. I confess, however, that I have felt it difficult to believe that aneurisms of any kind depend directly on the mere force of the action or overaction of the heart. I think there are other influences in operation, especially in causing peripheral dilatation. But, whatever be the mutual relation of hypertrophy of the heart, and partial or peripheral dilatation of the aorta, their usual co-existence with disease of the smaller arteries, and the frequency of cases such as this, appear to establish the fact of an essential pathological correlation of peripheral aneurism and hypertrophy of the heart as effects of a common cause—the impaired tonicity of the arteries. And hence, there is established, through the medium of the disease of the arterial coats, a correlation, of certain cases of aneurism and disease of the heart, which is not accidental but essential.

Notwithstanding the obscurity that invests the subject, it cannot be gainsaid as a foregone conclusion, that hypertrophy and dilatation of the heart are equally distinct from each other in their essential nature and in their effects, and consequently in their separate existence; and, however conjectural our conclusions may be, still it is necessary to trace by their different effects the distinction of each from the other; although in practice they do usually occur combined, probably for this reason that cases do not always come under medical observation till dilatation has set in. Dairsie's case sets forth the ordinary features of hypertrophy of the heart:—force of the circulation; oppression of the chest, without venosity of the blood, or obstructed circulation; the symptoms local; the chief signs physical; the greatest risks accidental, until dilatation sets in; and no such derangement of other functions nor of the constitutional health as might be looked for in spontaneous disease of this organ. It is this remarkable absence of secondary complication in the progress of undilated hypertrophy that has led me to regard it as the natural compensation for some existing physical defect in the powers that maintain the circulation.

The conviction that, in physical diseases of the heart, hypertrophy is nature's mode of preventing embarrassment of the circulation, increased my difficulty in regard to cases of so-called primary or spontaneous hypertrophy of the heart, but now I see it to be a reasonable belief that hypertrophy is always a secondary lesion; and in cases, such as this, of disease of the arteries, it arises in a manner quite analogous to that in which it is induced by physical diseases of the heart, with the view of counterbalancing the obstruction of the circulation which otherwise would arise. In such cases, therefore, we have hypertrophy arising as one of the earliest recognisable indications of a diseased condition of the arteries. We cannot inquire here what is the source or proximate cause of this state of the arteries. It is not a satisfactory solution of the question that it may result by deposit from the arterial blood contained in the affected vessels. There is no conclusive evidence that

any change of the blood has specifically to do with atheromatous and other degenerations of the arteries. It is not improbable that the lesion once established will affect the arteries more or less extensively; and in the present state of our knowledge we may regard it as one of the results of rheumatism.

At present I need not write minutely on the influence of the concomitant pulmonary affections from which the patient suffered, especially the acute attack and the chronic bronchitis which appeared to result. The condition of the patient during the later months of his life was largely influenced by the paralytic and mental disturbance arising out of the apoplectic seizure.

There is abundance of evidence to prove that peripheral dilatation of the aorta does not necessarily occasion hypertrophy of the heart, and that such a state of the artery does not require for its production that the left ventricle should be in a state of hypertrophy. Perhaps one of the most remarkable illustrations of this is to be found in a case recorded by Dr Law of Dublin.¹

The arch of the aorta was dilated to three times its natural circumference, and the coats of this artery and those of the great vessels arising from it were converted into an osseous tube. The orifice of a large aneurismal sac existed at the commencement of the descending aorta. The heart was of the natural dimensions, and it was not displaced.

It is not to be concealed that there are peculiar difficulties connected with the demonstration of this subject. The difficulties, too, are increased by the limited number of completed observations which individual physicians have the opportunity of making and recording; and from the difficulty of giving such descriptions of morbid conditions, which cannot be very precisely defined, as to render our observations available to other writers: this is true especially in regard to hypertrophy and dilatation of the heart in their relations and combined proportions.

It is not more evident than it is intelligible that, in a great proportion of cases of aneurism of the aorta, there is no tendency to the production of any disease of the heart, and its occurrence is truly accidental. We have seen that even in instances of peripheral dilatation this is the case, owing, I believe, to localization of the disease of the artery. And, no doubt, it is for the same reason that, in sacular aneurisms, the heart usually preserves its normal condition, and hypertrophy and dilatation are unlikely to arise, unless there be disease of the valves of the heart, or co-existing and extensive disease of the arteries.

Moreover, it appears that cases now on record prove beyond dispute that sacular aneurisms of the ascending aorta, even though they should be close to the heart, do not involve disease of the heart as a necessary consequence. It is scarcely necessary to quote

¹ Dublin Journal. Vol. 21.

cases illustrative of this view ; but I prefer narrating cases already published to giving observations of my own.

Dr F. Robinson communicated to the Pathological Society of London¹ the case of a soldier, æt. 49, in whom the heart was small. The valves were competent, but the aorta and its semilunar valves were atheromatous, and the coats of the artery were thickened. A sacular aneurism, which burst into the trachea, existed in the ascending aorta ; the orifice of the aneurism presented a valve-like and abrupt fold of the coats of the artery.

Dr Crisp, in his appendix,² narrates the case of Mrs Walworth, æt. 40, whose case was supposed to be one of tubercular disease. She had frequent hæmoptysis, and suddenly she died after profuse bleeding from the mouth. The right lung adhered, and was carnified throughout. The heart was small, and the valves healthy. A sacular aneurism, as large as the fist, existed to the right side of the ascending aorta ; its orifice was about one inch and a quarter in diameter. The aneurism had discharged into a large bronchial tube.

I do not quote in evidence the often recurring cases of sacular aneurism at the origin of the aorta close to the heart, because it may be argued that their usually early rupture into the pericardium, auricles, etc., does not afford them time to give rise to their effects on the heart. Such cases, however, substantiate the truth of the view I entertain, that mere contiguity of the aneurism does not involve the heart in consecutive disease.

Without insisting upon conclusions arrived at, I conclude this part of my paper by submitting the following as considerations arising out of this subject, fitted to advance and simplify our views of the pathology of aneurism and disease of the heart.

1. Hypertrophy of the heart is probably in all cases a secondary lesion, and is the result of nature's effort to counterbalance a pre-existing hindrance to the circulation.

2. Dilatation of the heart is the natural resolution of local diseases which may, in the first instance, excite hypertrophy. Embarrassment of the circulation, with venosity of the blood, dropsy, etc., usually arises with this consecutive dilatation.

3. Valvular disease of the heart often co-exists with aneurism of the aorta, especially peripheral aneurism ; the sigmoid valves most usually are affected, perhaps from contiguity.

4. In such cases the consecutive condition of the heart does not materially differ from that which occurs in cases of simple valvular insufficiency.

5. A diseased condition of the arterial coats often exists in conjunction with hypertrophy of the heart, as is commonly seen in cases of apoplexy with disease of the cerebral arteries.

6. There is reason to think that the disease of the arterial coats may exist extensively in the system, though the aorta and the

¹ October 15, 1862.

² Treatise, p. 392.

arteries at the base of the brain usually present its most advanced effects.

7. In this state the aorta is apt to undergo dilatation, constituting usually peripheral aneurism.

8. The diseased state of the arteries destroying their elasticity, the circulation is to that extent obstructed, and the left ventricle, under the additional burden, undergoes hypertrophy to compensate the lost tonic of the arteries.

9. In such circumstances hypertrophy arises in a way analogous to that which occurs in cases of disease of the valves, etc., of the heart.

10. Consequently, hypertrophy of the heart and peripheral aneurism stand associated together as effects of the same diseased condition of the arteries.

11. Consecutive preponderating dilatation may occur in such cases; but the progress to that stage is liable to be hindered by the accidents of hypertrophy, as, for example, of cerebral hæmorrhage, which is promoted by the co-existing disease of the arteries.

12. Aneurism of the aorta is often altogether local in its origin, and has no tendency to involve the heart in associated or consecutive disease.

13. Such aneurisms are usually sacular, but they may be peripheral, and they suggest the probability of localization of the disease of the coats of the artery.

14. Proximity to the heart in such cases does not affect that organ.

(*To be continued.*)

ARTICLE II.—*On Ovarian Dropsy, with Cases of Ovariectomy.* By THOMAS KEITH, M.D., F.R.C.S.E.

(*Read before the Edinburgh Medico-Chirurgical Society, July 15, 1863.*)

I PROPOSE to give, very briefly, my experience of ovarian dropsy; for I have had the misfortune, during the fifteen years of my professional life, to have seen fully my share of cases of ovarian disease, and, on looking back upon these cases now, the retrospect is in every way a very sad and most unsatisfactory one; for of all that have occurred during that time, in my own, as well as those I have had the advantage of seeing in my brother's practice, which have been let alone, or treated with palliatives, or tormented by half-measures, only one is now alive. The exceptional case was an example of multilocular disease, in a patient of middle age, and commenced five or six years ago. The largest cyst, after having been tapped several times, was injected with iodine. The inflammatory action that ensued nearly cost the patient her life, and though the secreting

power of that cyst was thereby destroyed, room was only given for others to enlarge with equal rapidity. These generally inflamed after being emptied, and what with tappings and injections of iodine, dyspnœa and peritonitic attacks, this lady has had a miserable life of it; and now she drags about a huge pendulous tumour—apparently nearly solid, and adherent to the skin—and as its growth has latterly been slow, there is a probability that she may attain her average duration of life.

With this solitary exception every case of the disease has run a rapid course. I have seen it, more than once, fatal within six months of its commencement, several times within a year, and in no case have the patients survived longer than two years after the tumour had attained a large size; and, besides others at more advanced periods of life, I have seen at least a dozen young and interesting lives lost, without an attempt to save them by the radical cure. The injection of iodine, it is true, generally destroys the secreting power of the cyst, but it is only applicable, with any hope of ultimate success, in the rare unilocular variety of the disease, and I have seen it followed by suppuration of the sac and death. My experience of tapping has been equally unfortunate. I have seen it, on one occasion, followed by death in a favourable case within forty-eight hours, and, in many instances, it is but another name for slow death, at least such has been my experience of it. When the disease is allowed to run its natural course, there is generally much more suffering in connexion with it than is usually supposed, and death from it is a very lingering and a very painful one. The cases that live long, in good health, are proportionally very few in number. You hear of them for a long time; one case lasts a lifetime, and is always before one, while the many who die early are soon forgotten. Besides, these longlived cases are sometimes in reality examples of fibrous tumours of the uterus. "What makes you cut into women," said a member of this Society to me one day; "if you would only let them alone they would live far longer. There is Miss —, she has had an ovarian tumour for the last twenty years, and she walks out and in to town as well as I can." Now I had seen Miss —. Hers was not a case of ovarian disease, but one of a large fibrous tumour of the uterus; and I know of another similar case of fibrous tumour that had long and often been mistaken for ovarian disease.

I have found, on trial, all the various half-measures brought forward for the cure of this formidable disease very tedious, very dangerous, and at best most unsatisfactory; still, there was little inducement for one here to attempt the radical cure; for with the exception of Mr Lizars's case, forty years ago—the first successful case in Great Britain—all attempts in Scotland had uniformly been attended with unsuccess, and there was still less encouragement to recommend it to patients, who, naturally, hearing but of fatal results, were most unwilling to entertain the thought of it. Show me a

successful case was the invariable reply; and, though long persuaded that ovariectomy was one of the most justifiable operations in surgery, I shrank from the performance of it. Besides, the more recent statistics by Mr Clay of the fatality of the operation, in the hands of first operators, was most discouraging. For, of 87 single operations performed by individual operators, only 34 recovered, and of 27 attempted operations, 20 died and but 7 survived to die of the natural termination of the disease.

At this time two very instructive and suggestive cases occurred within a short time of each other in the practice of my brother. The first was that of a patient from the country, about forty-five years of age. The tumour was a large multilocular one, and increasing rapidly. My brother proposed to perform ovariectomy; but, on going to see her, within a fortnight of her first visit to him, he found her in bed feverish and ill. Her health broke up; she never got into a state for operation, and she died soon after.

The second case was that of a young patient, about twenty years of age, also from the country. The tumour was of ten months' growth, multilocular, and her health was giving way very fast. On going out to remove the tumour, the week after she was first seen, he found her labouring under slight pleuritic effusion, and not in a condition in which to risk the operation. Thinking to relieve her breathing, the largest cyst was tapped. Inflammation of the cyst came on, followed by the most intense peritonitis I ever saw, and she died four or five days afterwards.

Soon after this, when I hated the very name of ovarian dropsy, and was almost inclined to accept the well-known dictum of Dr William Hunter, that the patient will have the best chance of living longest under ovarian dropsy who does the least to get rid of it, I was asked to see Mrs R., aged forty-nine, who, after long battling with her disease, had taken to bed, with little prospect of again leaving it. The tumour was a large multilocular, of rapid growth, filling up the whole abdomen, and fast breaking up her health; and when this woman, finding herself dying of her disease, placed herself entirely in my hands, confiding in my honour, asking me to do whatever I could and whatever I chose to save her life, warned by the results of these preceding cases, and by my former experience of this disease, I did not dare to recommend to her any other treatment than the radical cure. But, on going to her house, a few days afterwards, to see to some necessary arrangements, she too was found to be affected with pleurisy. In her case, however, it yielded to remedies, and on the 18th of September 1862, I removed a multilocular tumour, weighing 25 lbs., besides nearly as much ascitic fluid. She was at the head of her family in the course of a month, and is now in perfect health.

The next case that occurred was that of Mrs S., aged fifty-five, recommended to me by Dr Thomson of Dalkeith. The case was one urgently demanding relief, for the life of the patient was

seriously threatened by the disease. The tumour, which was a large multilocular, weighing 45 lbs., was removed on the 7th of January last. The operation was a very severe one, from the extensive and intimate nature of the adhesions to the abdominal wall, bowel, omentum, and mesentery, and extended over two hours. She recovered without a bad symptom, and without the discharge of a drop of matter from the wound; and when I saw her a few weeks ago, it was difficult to recognise in the healthy looking, happy face before me, the haggard emaciated patient of six months before.

The third case died suddenly from exhaustion the day after the operation, on being raised in bed. The prognosis, in this case, had been most unfavourable, for the large multilocular tumour, weighing 63 lbs., had so displaced the heart that its apex was beating against the third rib. I wished to have operated on this case eight months before, when the health of the patient was pretty good, or at least only beginning to give way, and the tumour was half the size it afterwards attained. She was, however, at that time taken out of my hands and tapped, and when she was again placed under my care, by Professor Simpson, eight months afterwards, her emaciation was extreme, and her strength exhausted. The effect of the tapping had been most disastrous, for though the opening in the skin had healed, the opening in the cyst wall remained patent, and as the cyst refilled, which it did in a few days, the secretion from it was forced into the loose cellular tissue of the abdominal wall, rendering the parietes of the abdomen so thick and brawny, and so vascular, that though, notwithstanding extensive adhesions, there was little difficulty in removing the tumour, the time occupied in arresting the bleeding, from numerous points in the wall, was so great, that I cannot help thinking this tended very much to exhaust still more her little strength, and to lead to the fatal result. As it was, judging from the post-mortem appearances, she was very nearly getting well. These cases have been already reported at length in the *Edinburgh Medical Journal*.

Multilocular Ovarian Tumour, weighing upwards of one hundred and twenty pounds. Ovariectomy—Recovery.

In the beginning of March last, I was requested by Dr Craig of Ratho, and Dr Carruthers of Cramond, to visit a patient of theirs—a Mrs H.—who had been the subject of a large ovarian tumour for at least three years. About five years previous to this, however, before she came under the care of Dr Carruthers, there was a history of an acute pelvic attack, and it is more than probable that the disease took its origin at that date. She married in 1858, and in the course of her first pregnancy she had repeated convulsions, unaccompanied, however, by albuminuria, and she was generally looked upon by her friends as a delicate, nervous woman, who used to faint when she got a tooth pulled. She recovered well from her

confinement, and did not require any attendance till July 1861, when Dr Carruthers, on being hurriedly sent for, found she had given birth to a seven months' child, and it was at this visit that he detected the ovarian disease. In the course of three weeks the distention became so great, and the dyspnœa so urgent, that it was necessary to relieve her by tapping, and nearly five gallons of fluid were removed. For some time after this she went about her usual domestic duties, apparently in the best of health. The cyst soon refilled, but, notwithstanding the great dimensions which the tumour was attaining, her general health continued good: she took her food well, lived quietly, and enjoyed life, until eighteen months after the first tapping, when a second was required. Upwards of fifty pounds of thick fluid were again withdrawn; but the size of the abdomen was little diminished by this operation, and secondary cysts were now felt in all directions. The tumour began at once to refill, she lost flesh, and her health rapidly gave way.

She was a middle-sized, well-formed, fair-complexioned woman, twenty-seven years of age. She was delicate and anæmic-looking, and was very much emaciated, especially about the shoulders and back. The tumour was of great size, and was slung by an ingenious arrangement of a broad calico bandage. It projected more to the left side, bulging the flank outwards, and it was found, after the removal of the tumour, that on this side some of the cartilages of the ribs had become absorbed by the pressure. Although fifty pounds of fluid had been removed but three weeks before, her girth at the umbilicus was already fifty-six inches, fifty-two inches end of the sternum, for the ensiform cartilage had disappeared there was a space of thirty-seven inches between the end sternum and the pubis. The ribs were pushed a great way upwards, while the liver, heart, and lungs were pushed far upwards, and as she lay in bed, the umbilicus rested between the heads of the tibiæ. In addition to all this, projecting from the vagina there was a large vascular tumour, the size of a child's head, which required to be supported by a broad pad. This was found to be a prolapsus of the posterior wall of the vagina; it was easily reduced, but soon came down again. The top of the vagina was so much drawn upwards, that it was impossible to bring the finger within reach of the uterus.

Finding herself dying from the pressure of a local disease, was it any consolation to this woman to be told that other women somewhat similarly affected, sometimes dragged on a miserable existence for ten, or fifteen, or twenty years? Finding nothing to be hoped for from palliative measures, she naturally asked, could surgery do nothing for her? She knew all about ovariectomy, and understood full well its dangers. She placed herself entirely in our hands, and notwithstanding the unusual and formidable dimensions of the tumour—for no tumour of such measurements had hitherto been removed and the patient survived the operation—we all felt,

on careful consideration of the case, that we were not justified in leaving, that we did not dare to leave this woman to die without an effort to save her, and I willingly agreed to remove the tumour, should it be found, when tapping was again necessary, that the uterus was free from pelvic adhesions. The circumstances of the case were besides favourable for the performance of a severe operation. The patient, though most fragile looking, was evidently a woman of uncommon resolution. Her house was in the country, in the midst of a garden. She had a most intelligent nurse, and having been for many years before her marriage in the service of her husband's employer, she was surrounded with every comfort that kindness could suggest or money procure.

We met again a fortnight afterwards, my brother Dr Keith joining our consultation. The abdomen now measured upwards of sixty inches at the umbilicus; it was covered with huge veins and varicose lymphatics, and presented a most formidable appearance. She was weaker than at our last visit, was losing flesh, and it was evident that no time was to be lost. We agreed to tap first,—to allow the heart, lungs, and liver to regain their normal positions,—to arrive thus at a more correct diagnosis than was possible before, besides diminishing the risk of the operation itself. I accordingly emptied the largest cyst on the left and upper part of the tumour. Fifty-five pounds of thick glairy fluid were removed, and the upper part of the tumour subsided, leaving a small space of clear sound under the ribs on either side; but the dulness of the epigastric region remained unaffected. The abdomen was still of great size, especially to the right side. Parietal adhesions were extensive, and the solid mass of the tumour large. The uterus was now within reach. It was dragged to the right side, but its body was movable, and free from pelvic attachments.

She was allowed to remain quietly in bed for three days, and the operation was proceeded with on the 31st of March. Dr Craig of Ratho, Dr Howden of Ratho, Dr Carruthers of Cramond, and Dr Keith were present. She was deeply chloroformed, and an opening made at first only sufficient to admit the hand. Firm adhesions between the abdominal wall and tumour rendered it necessary to cut into the latter, in order to make out the line of separation between the two. Strong adhesion was separated downwards to the pubis, and the state of the pelvis examined by the hand; the uterus was free, but the pedicle was very short, and, besides the broad ligament, consisted of a fibrous offshoot from the uterus, and was bound down by firm adhesion, along with a portion of the tumour, to the inner edge of the pelvis, over the iliac vessels, on the right side. Various cysts were then rapidly emptied through a large canula, and a great quantity of thick viscid fluid of different densities removed. After separating by the hand a great extent of adhesion, there remained a large solid mass, made up of small cysts—the jelly-like contents of which were too thick

to run through the canula—lying between the umbilicus and ensiform cartilage, so completely incorporated with the abdominal wall, that it was found impossible to tell where lay the line of demarcation between the two. Thinking this mass might be separable, if reached behind the parietal peritoneum, I cut into this texture near the edge of the mass, but was also foiled in that direction. It was then dissected off with the knife for a considerable extent; but as this went on, the bleeding began to get troublesome, for if I cut near the muscle, I apparently got in amongst the enlarged terminal branches of the internal mammary arteries, and when I kept away from the wall more into the substance of the cyst-wall, which was here upwards of an inch in thickness, the parts were so vascular, that I was warned not to proceed further in that direction. But as it was now safer to proceed than to stop, the pedicle was carefully separated from its adhesions, and the clamp applied, with some difficulty, close to the uterus. The bleeding at once ceased. A ligature was placed between the tumour and clamp, and the pedicle divided; and, as this was done, a sudden gush of blood, filling the pelvis, made me fear for a moment that some of the iliac veins had been injured. This was seen, however, to have been caused by the return blood from the tumour, the ligature having slipped. I next cut into the mass of the tumour, passed my arm into it, and broke down the numerous small cysts of which it was composed. The relaxed state of the abdominal wall was now so great, that the adhering cyst-walls were easily cut away, without its being necessary to enlarge the incision above the umbilicus. It was thought better to leave a piece about the size of a handsbreadth, close to the ensiform cartilage. This could not have been conveniently dissected off without enlarging the incision at least eighteen inches, and this I was most unwilling to do. The omentum, which was puckered at its base, by old adhesions, had given a good deal of trouble during this latter part of the operation, and as it had been necessarily a good deal handled, and felt cold, a fine silk ligature was passed round its base, and the whole cut away, the ends of the ligatures being cut off short and left behind. We then waited till the bleeding ceased. Some clots lying upon the upper surface of the stomach were removed, and the abdomen and pelvis cleansed from clots, ovarian fluid, and debris of cysts. This was done carefully, but most thoroughly. The clamp, which had been allowed to drop into the pelvis to be out of the way, was brought outside; but, notwithstanding the laxity of the abdominal walls, there was a considerable drag upon the uterus. The wound was now closed amidst the most serious apprehensions for the immediate safety of the patient; for my brother, who was giving chloroform, had reminded me occasionally during the last half-hour, that the pulse had from time to time been imperceptible at the wrist. The operation lasted an hour and a half.

The shock was most severe, and for an hour or two she looked as if she would die. Reaction was not encouraged however, and she was not stimulated, for I was afraid of bleeding from the great extent of adhesion that had been separated, and she had a peculiar hæmorrhagic look, which was most alarming. Towards evening, vomiting came on, and her appearance improved after this. She passed a better night than could have been expected, and by morning the fear of death from shock or hæmorrhage was over.

She remained under the charge of Dr Carruthers of Cramond, and I take this opportunity of acknowledging the intelligent care with which the after-treatment of this case was conducted by him. The wound healed by the first intention, and the clamp fell off on the twelfth day. That afternoon she complained of some irritation of the rectum, and began to pass small quantities of bloody jelly-like mucus. Next day, there was a feeling of some fluctuation above the pubis, and there was also some fulness of the recto-vaginal fossa, with great swelling and tenderness of the vagina. Soon after our visit in the morning, she was seized with intense abdominal pain, severe vomiting, followed by coldness of the extremities, imperceptible pulse, and collapse. Freely stimulated, this alarming condition passed off by the evening. The vomiting, pain, and distention continued, and for some days her state gave rise to much anxiety. On the sixteenth day, I made an opening by the rectum into the recto-vaginal fossa, and evacuated six or eight ounces of exceedingly fœtid bloody fluid. This gave relief, and a few days after there was a spontaneous discharge of several ounces of matter from the lower end of the external incision. By the end of the third week all anxiety on her account was at an end; and though this attack had reduced her to an extreme degree of feebleness and emaciation, her subsequent convalescence, though slow, was uninterrupted.

The weight of the cyst-walls and contents of the various cysts was upwards of one hundred and twenty pounds. But a great amount of cyst-fluid was lost during the operation, not included in this estimate, for the sofa on which the patient lay, as well as the blankets and carpet of the room, were soaked through and through; and this is, so far as I am aware, by far the largest tumour ever removed successfully from the living body.

It is now five months since this operation was performed. The patient is going about quite well, with every prospect of perfect health and a long life before her. It was the most severe and formidable proceeding I was ever concerned in, and surgery never rescued any one from a miserable death under apparently more hopeless circumstances.

Isabella C., æt. twenty-two, from Dundee, recommended to me by Professor Syme, came under my care on the 14th of May last. She had suffered from ovarian disease for about five years, but

little inconvenience had resulted till two years ago, when she had severe pain in the left side under the ribs. Since then she has had repeated attacks of pain here and there all over the abdomen. Latterly, the tumour has increased rapidly, and her general health has begun to give way.

She was a little woman, considerably emaciated, but of remarkable cheerfulness and fortitude. She measured $41\frac{1}{2}$ inches at the umbilicus, and $20\frac{1}{4}$ between the ensiform cartilage and pubis. The tumour filled up the whole abdomen, and adhesions were supposed to be extensive. No solid masses could be detected. Altogether, she was in a better state of health than any of my previous patients on whom I had operated. She had, however, a red, dry, irritable tongue, and parched lips, and knowing too well, from former experience, how difficult it is to get a patient suffering from ovarian disease out of this condition into a better, and how easily she may pass into a worse state, I did not recommend any unnecessary delay.

After allowing her to remain quietly in bed for a few days, I emptied the cyst, removing 27 lbs. 10 oz. of thick dark treacly-looking fluid. I did this to satisfy myself that the tumour was not composed of a single cyst; in which case, I should not at that time have considered myself justified in at once recommending such a serious proceeding as ovariectomy. But, finding a large mass of secondary cysts lying under the liver, I next morning removed the tumour through an incision little larger than sufficient to admit the hand, breaking down firm adhesions over the whole anterior surface of the tumour, from its attachment up as far as the edges of the ribs on the left side, and over both iliac fossæ, and separating the omentum, which was adherent to the upper part of the cyst. The tumour was attached to the right side by a short pedicle of unusual breadth, and when the clamp was secured outside, there was a great drag upon the uterus. I then waited till a capillary hæmorrhage from the torn adhesions had ceased, removed some small clots, sponged out the pelvis, and closed the wound. Dr Keiller, Dr James Sidey, and Dr Keith gave me on this, as on other occasions, their usual excellent assistance.

The tumour weighed 33 lbs. 2 oz.

She made a rapid recovery, though, from the unavoidable strain upon the uterus, she suffered for two or three days more pain than I had previously witnessed in any of my former cases; but this ceased at once on the removal of the clamp. She went home to Dundee, quite well, four weeks after the operation.

The natural history of such a case would have been simply this, a longer or shorter period of increasing suffering, followed by a miserable and lingering death.

Mrs R., æt. fifty-two, a patient of Dr James Sidey, was known to have suffered from ovarian disease for about six years. For four years its progress was slow; but almost from its commencement

she had had severe attacks of pain in the tumour, low down in the pelvis, and within the last two years its increase had been decided. I first saw this patient about ten months ago; her health was then pretty good, her life not in the last threatened, and non-interference was consequently recommended. Six months ago, and again three months ago, I still advised no interference. But since then, especially during the last two months, the tumour had increased in all directions with great rapidity, and the question of its removal began to be entertained.

The tumour was of a very irregular shape, the cysts small and very tense, and here and there small hard masses were felt. Both flanks were bulged outwards, and the edges of the ribs were beginning to be slightly everted. She often had great pain, referred generally to some spot low down in the iliac regions, and her nights were often restless. But the tumour was pushed downwards into the pelvis, and the examination of the uterus and roof of the vagina was not satisfactory; for the uterus was jammed against the left side of the pelvis, and the upper part of the vagina had a hard tense feel, and even, after having examined this case on at least twenty different occasions, I still did not feel satisfied, till one day, about six weeks ago, when I put the patient upon her knees, and making pressure upon the roof of the vagina, I seemed to have dislocated the pelvic portion of the tumour from its position, for the uterus was now felt to be quite free and movable, and the vagina lost at once the hard tight feeling it had so long maintained. Soon after this, she had a most severe attack of pain in the tumour, accompanied by great irritation of the rectum, and excessive vomiting, which continued for nearly a week. This attack was followed by acute painful œdema of the right leg; and as this subsided, there was swelling of the vagina and lower part of the abdominal wall, and ascitic fluid began to collect rapidly in the cavity of the peritoneum. As this accumulated, it became evident that adhesions, which had been supposed to be present over the anterior surface of the tumour, did not exist, and there was a corresponding improvement in the feeling of the uterus and upper part of the vagina, and I was satisfied, as well as were several of my friends who had examined this case, and in whose judgment I had great confidence, that the body of the uterus was free from any attachment. I had intended, before this ascitic fluid had made its appearance, to have emptied a cyst of considerable size on the right side, which dipped into the pelvis, in order to assist the diagnosis; but as that now seemed clear, I was unwilling to put my patient to the slight additional risk of doing so, and I began the operation in hopes that this tumour, which I had so long looked upon as one most difficult of removal, would in reality be taken away quite easily.

After exposing the tumour and allowing the ascitic fluid to escape, it was found that the tumour so filled up the pelvis, that it was necessary to empty the various cysts before the pelvic cavity

could be examined by the hand. About three gallons were collected, and both ovaries were found to be diseased. The left was composed of a single cyst, and extended upwards under the ribs. It was tapped and drawn out, and its pedicle, which was the longest I ever met with, was secured. The uterus was small, but movable in all directions, and free from adhesion. On proceeding to remove the right ovary, it was found to have no pedicle. The tumour arose about an inch from the uterus, the broad ligament suddenly expanding in all directions, enclosing within its folds an immense thick mass of dense sarcomatous substance, out of which arose the large cysts composing the tumour, and the entire removal of which was evidently impossible. After due consideration, it was thought the better practice to remove as much of the mass as possible, instead of abandoning the operation altogether, by returning the now emptied and partly broken-down cysts. The cyst-walls were, moreover, exceedingly vascular, and had been punctured in many places, and were bleeding freely; and it was out of the question to cut off the mass, in hopes of being able to tie the vessels singly. A strong twine ligature was first passed through it; but, from the elastic nature of the tissues, it was impossible to tighten this sufficiently to arrest the circulation through such a mass. It was finally secured with difficulty by two pairs of clamps, each embracing one-half of the enormous pedicle. These were arranged outside in a much more satisfactory way than could have been expected. Some bleeding, which came freely from where the clamps were passed through, was arrested by pressure with lint. The upper part of the wound was then closed by seven or eight points of wire-suture; for it had been necessary to carry the incision for three or four inches above the umbilicus. But as I was afraid to cut off the mass of flaccid cysts, in case the clamps should slip, or in case they had not sufficient control over the large vessels in the substance of the mass, I allowed them to remain attached till next morning, and, on then removing the mass of cyst-walls, found that it contained a large deposit of bony matter, here and there, in its substance. The stump of the pedicle—such as it was—was then freely touched with perchloride of iron, and a bag of charcoal laid over all.

There was no shock whatever from the operation, which was very prolonged, and she was put to bed in a very good state. She passed water copiously without requiring the catheter, and perspiration was free. For four days she did very well, and I was fondly anticipating a cure. After a restless night, however, in one of those hot nights we had last week, she suddenly began to sink, apparently from pure exhaustion.

The examination was very interesting. On carefully examining the line of incision, which had been secured by seven wire-sutures passed through the whole thickness of the abdominal wall, including nearly half an inch of peritoneum, it was observed that the peritoneal line of union was so uniformly perfect that it was impossible

to tell where the line of incision had been. The wires were felt under the peritoneal surface; and on cutting one of these from the outside, in order to see how the cut extremity of the wire would behave when passing over the freshly united serous surface, I was surprised to find, though it was withdrawn with the utmost gentleness, and the point kept as much as possible against the upper surface of the wall, that the point of the wire tore the peritoneal membrane right across, leaving it ragged, and allowing a drop of matter which lay along the track of the wire to appear on the peritoneal surface. This left upon me the impression that we do not trust nature half enough in leaving wires so long in, and it seems to me that Mr Spencer Wells is right when he unites his wounds with fine silk, and withdraws his sutures at the end of forty-eight hours.

There was no trace whatever of general peritonitis. A copious exudation of thick healthy lymph existed all around the part of the tumour not removed, and the intestines in the neighbourhood were adherent round this. The slough had not extended beyond the clamps into the substance of the mass, which contained several small cysts. The uterus was very movable, and perhaps smaller than natural. I was quite satisfied that no more of the attachment of the tumour could have been removed than had been done, and it appears to me that the diagnosis of such a rare and unfortunate case is impossible.

These are all the cases in which up to the present time I have performed this operation, and with the successful cases amongst them, I have had the good fortune to break the line of unsuccessful cases that has, since Mr Lizars's case, in 1823, hitherto followed the operation of ovariectomy amongst us. Never having seen a single case cured, but having seen many die under all other modes of treatment, I have now confidence in this operation. I have given it a fair trial, for I have not selected favourable cases as I have heard it reported. On the contrary, I have declined no case that has presented itself, however advanced the disease, or however reduced the strength of the patient. But I have refused to operate in many cases, in which life not being seriously threatened, I neither considered the patient warranted in submitting to, nor myself justified in undertaking, such a serious proceeding. With one exception, in which the patient's health was only beginning to give way, all were extreme cases of multilocular ovarian disease. The weight of the tumours was beyond the average; one was by far the largest ever removed with success. Adhesions were present in all of the cases, and in five of them were very formidable and extensive; and in four, the time occupied by the operation was between an hour and a half and two hours and a half.

Into the many as yet undecided questions, in connexion with ovariectomy and its after-treatment, I do not, from my limited experience, feel warranted in expressing an opinion; but it has seemed

to me better to narrate my cases simply as they occurred. At present, for instance, Mr Clay's tables appear to show that there is a smaller mortality in leaving the pedicle of the tumour within the abdomen than in securing it externally; while the more recent experience of the most successful London operators would seem to indicate that, in hospital-practice, there is a larger amount of success than in private operations. Now, we would certainly expect the opposite of this to be true. In a year or two, statistics will doubtless decide all these and other questions in connexion with this subject. I would merely add, that, after having carefully studied in the originals every case of this operation I could find narrated, it appears to me, that what has been written on ovariectomy by Mr Spencer Wells of the Samaritan Hospital is most satisfactory and trustworthy. No one has done more than Mr Wells to improve the operation and to simplify its after-treatment; and it gives me pleasure to acknowledge that when I commenced these operations I took him for my guide.

There is no operation that has had so much evil spoken of it as ovariectomy. No surgical proceeding ever brought forward for the saving of life has been so unfairly treated; not one has had to pass through such an ordeal of opposition, ridicule, and unbelief, and none has come so triumphantly out of it. When successful cases were made known, it was said they were selected cases, and should have been let alone, and that the unsuccessful had been kept back. Fatal cases were spoken of as tragedies; and when an honest man narrated his unsuccess, it used to be said that, if the whole truth were told, it would be found that not half of the unsuccessful cases had been acknowledged.

But, thanks to the labours of intelligent surgeons and honest men in London and the provinces, this operation has now for years past taken an honourable place in surgery, and has been recognised by all who have seen much of the disease,—and such only have any right to give an opinion in the matter,—as an operation often imperatively called for. For the more one's experience of this formidable disease enlarges, the more one sees of the risks and failures of half-measures or palliative treatment, and how seldom nature works a spontaneous cure, the more is ovariectomy welcomed, formidable though it be. That some day, it is to be hoped not far distant, some new method of more safely and perfectly imitating nature's ways of cure will be found out, there can, it seems to me, be no doubt. But, in the meantime, multilocular ovarian disease is unfortunately one incurable by any method less dangerous than ovariectomy. It is a proceeding, it seems to me, applicable to the majority of cases of multilocular disease, and in a short time the simple rule of treatment will, I believe, be, *to wait till the life of the patient is threatened by the disease*, and then, in suitable cases, to recommend the radical cure; and every successful case will be a life saved.

ARTICLE III.—*An Account of Two Cases of Poisoning by Eating American Partridge.* By P. NEWBIGGING, M.D., F.R.S.E., Pres. R.C.S.E., Physician to the Royal Hospital for Sick Children, etc., etc.

On the 9th March 1857, I received a hurried message to visit a lady residing at a short distance from my own house, and lost no time in doing so. I found that my patient and a friend who was on a visit to her had, soon after dinner, been taken ill, and obliged to retire to bed, owing to the sensation of extreme cold, accompanied by a feeling of excessive exhaustion and depression, which had rapidly supervened after that meal. My patient expressed herself as if she were dying, and stated that she must have been poisoned, but in what manner she could not say. She had been, until the time of dinner, in perfect health. The pulse was about 64, extremely feeble; the skin and tongue cold; and she stated that the sensation of cold was rapidly ascending. There was no confusion of mind, but vision was much impaired. I inquired into the nature of the food which had been taken at dinner, and learned that, amongst other things, American partridge had been freely eaten.

Without my entering into further details, it may be well to quote at length the report of one of the ladies, who, at my request, so soon as she was able, drew up the following statement:—"As you expressed a wish that my friend Miss F. and myself should give you an account of our sensations after eating the American partridge, which had so baneful an effect on us, and so nearly caused our death, I now proceed to do so. On Monday the 9th March, we went to dinner about a quarter before six, when we had some currie soup, with boiled rice; and, although other dishes were on the table, we all partook of the American partridge. Miss F. had a wing, part of the breast, and a leg; my daughter had some of the bird, but, not liking the flavour, ate little of it; I partook of the white part of the breast; and each of us had a potato. Miss F. and myself had a glass of sherry. We also ate part of a tapioca pudding; and, for desert, had some orange glacé, which is the fruit with a clear barley-sugar substance put over it. About a quarter before seven, we retired to the drawing-room. In a very short time, it might be from fifteen to twenty minutes, we both became very uneasy; I, from a feeling of chilliness over my head, and a sensation of excessive cold and distention across the chest. Miss F. also suffered from cold and sickness, but, on reaching her room, vomited freely, which gave her some degree of relief. I walked about the drawing-room for a short time, hoping that the strange sensations might pass off; but, the coldness increasing, with considerable dimness of sight, I went to my bed-room; and my maid, on coming to me, was so startled at the frightful pallor of my face, that she

immediately got me some brandy, which I swallowed with difficulty, owing to a choking feeling in my throat.

"The distention was now so great, that my clothes were removed as quickly as possible, and I was so much swollen, and the cold feeling so distressing in my limbs, which were every moment becoming more powerless, that I half lay on a chair while my clothes were being dragged off me. After Miss F.'s first sickness, she returned to the drawing-room, partly relieved, and seated herself in front of the fire, in the hope of getting warm; but the coldness and prostration increased, accompanied with almost total blindness, so that she again staggered to her room, but hearing that I was sick came to me.

"When I saw her, she looked very ill, her face being of a pale grey colour, without any tinge of red in the lips. I immediately asked her if she was sick and cold; and on her replying, "Oh yes, I am very ill!" it then struck me that we were both poisoned. You will observe that until that time neither of us knew that the other was ill. I gave orders to send for you, and I was at once put into bed; but my limbs were nearly useless. The knees seemed to have lost all power, and the feet and legs felt quite dead,—circulation in that part of the body having apparently ceased. A mustard emetic, which you immediately administered, partially relieved me; but, owing to a sense of suffocation, I found great difficulty in swallowing—my tongue felt enlarged and stiff. Poor Miss F. was assisted to her bed, and her clothes being taken off, she became fearfully convulsed. It was now about two hours from the time we had eaten the bird. During all that period my brain was unusually clear; and although I believed I was dying, I was quite calm and composed. At other times, when seriously ill, I have suffered much from the fear of death. Miss F. tells me of a similar feeling of composure, under such urgent circumstances. After the emetic had taken effect, you ordered a large mustard poultice to be put over chest and stomach, which remained on for a considerable time without producing much effect, and certainly no uneasiness, although at other times mustard blisters my skin, if not removed in fifteen minutes. The bottles of hot water which were placed round me were also unfelt. I now dreaded paralysis, as the sensation of intense cold and helplessness seemed to creep over my whole body. Miss F.'s danger seemed to be from the convulsive action, and the almost total blindness. I shall never forget the feeling of thankfulness I experienced, when, after the second or third emetic, the stomach emptied itself freely, and I exclaimed, 'I am saved.'

"You little knew the difficulty I had in swallowing, while you were urging me to drink quickly. Miss F. slept soundly till the following morning, but I could not do so, owing to the continued sensation of coldness. On the succeeding days I was much annoyed with a prickly feeling over my body, and involuntary startings and movements of my fingers; and now, when I write (17th March

1857), I feel as if I had passed through a long and serious illness, from the great feebleness and apparently slow circulation throughout my frame. Miss F. was also very uncomfortable for some days, owing to similar sensations, but the poison did not affect her nervous system to the same extent. I have now told you all I can of our feelings at that sad time, and trust that, these facts becoming known, others may be saved from a similar illness. I feel certain that, if the bird had not been speedily ejected from the stomach, by the prompt and efficient measures which you employed, death must have ensued."

Following the example of my friend Dr Burt, whilst describing a similar instance of poisoning, I have adopted the plan of allowing the patient to state her own case, being well aware that, in this way I can give a more accurate account of the sensations of the patient than could be done by any description of my own. The treatment resorted to has been generally detailed in the history of the cases: it consisted in frequent emetics, the application of sinapisms, and constant friction of the whole body with warm cloths; and, as soon as the stomach seemed to have parted with its contents, the employment of stimulants largely, such as brandy, etc. This treatment was commenced on my arrival, about eight o'clock, and was continued until eleven, at which time all the urgent symptoms had subsided,—the pulse having risen, the skin become warm, and the vision been restored. I returned after midnight, lest a relapse might have occurred, as the cases were quite new to me, never having previously witnessed an instance of poisoning from such a cause, but fortunately I found both ladies going on satisfactorily, although greatly exhausted. I had no opportunity of having an analysis made, either of the residue of the bird, or of the contents of the stomach; but I am of opinion that our knowledge in this direction could not be much advanced, as such proceedings in the interesting case reported by Dr Burt were not followed by any result. The danger in both cases, especially in the younger patient, appeared to me to be very great; indeed, at one time, when Miss F. became painfully cold, and the pulse and vision were almost gone, I confess I felt and expressed the opinion that all our exertions would be fruitless. Great, however, was our satisfaction and thankfulness, when, after a time, with returning vision, the pulse improved, and the skin became warm, and she passed from a state of what appeared to all to be imminent danger.

I would refer those interested in this subject to Dr Bigelow's *Miscellaneous Writings*, 1854, and to Mr Stephen's case, related by Dr Burt in the *Edinburgh Medical Journal* for May 1856, where will be found in detail much information on the subject. I would remark, in conclusion, that, so far as I have considered the question, I am of opinion that, in those cases where the flesh of the American partridge proves poisonous, it is when the contents of the crop are allowed to remain for some time in contact with the flesh of the

bird, and that thus the subtle poison, whatever that is, pervades the flesh of the whole animal, and becomes capable of affecting, in a most serious and dangerous manner, persons partaking of it as food. The practical effect of this view is, that all persons connected with the sale or exportation of the American partridge should at once cause the crop to be removed, although this proceeding might in some degree alter the plump appearance of the bird.

ARTICLE IV.—*Cases of Diphtheria, with some Remarks on the Treatment of Croup and of the Throat Affection in Scarlatina.* By Dr G. HAMILTON, Falkirk.

(Concluded from page 141.)

I INTERRUPTED the history of my experience in diphtheria to make the remarks which conclude the first part of this article, because I think they have an important bearing on the treatment of this disease also. I shall now resume my narrative.

During the thirteen days that the little girl, the history of whose case I last narrated, lay ill, I examined daily with great care the throats of five other persons who lived in the house,—viz., 1st, A girl, about 13 years of age, who used to keep the child; 2d, The servant girl; 3d, A young lady who was visiting the family; and, 4th and 5th, The father and mother. On 7th Feb., or four days after I had been called to see the infant, the mother complained a little of her throat, and, on examination, it was found somewhat inflamed, and the caustic solution was applied. In a day or two afterwards, the servant girl and the young lady also complained, and were similarly treated daily, as indeed were all my patients. On the 14th, the throats of all the five were inflamed, the inflammation having commenced in four of them as mere superficial patches, followed by the distinct diphtheritic effusion. On the 16th, the girl who kept the child, and who had gone to her own home, had the throat inflamed, but with no lymph on it. A patch of this, however, showed itself two or three days afterwards. She was feverish at this date, and an antimonial emetic was given, which apparently acted very beneficially in reducing the pulse and abating the fever. The others were perfectly free from fever; and the father, on the 15th, felt himself so well that, much against my advice, he ventured out to his regular duties. I had cauterized and sponged with the caustic solution their throats daily, and I had ordered to be taken, for three or four days, ten drops of the tinct. mur. fer. twice daily. Nevertheless, the inflammation of the throat and the effusion of lymph kept slowly but steadily advancing.

On this day, the 16th, my little patient died. Seeing no decided indications, in any of the cases, of having got the inflamma-

tion under effectual control by the treatment I had employed, I now commenced giving, as an alterative or constitutional medicine, the iodide of potassium, employing the same local applications as formerly, with emetics whenever croupiness made its appearance, or the pulse became quick, full, and vibrating. Where there was no fever, I gave a tablespoonful of the solution of the iod. pot. (5i. to water $\bar{3}$ x.), three times daily to adults, and less in proportion to younger patients; but where the case was in the least urgent, I gave the same dose every three or four hours, and latterly even oftener; and from this time it seemed to me that I had got a certain and more decided amount of control over the disease. I had not seen this medicine mentioned by any writer on diphtheria as having been employed with success; but it struck me, from its well-attested constitutional efficacy in syphilis, rheumatism, the undermining ulcer of the cellular tissue, etc., that it would also be likely to be useful in this disease, and I had employed it in rather a severe case of diphtheria three years previously, with apparently very satisfactory results. I confess, however, that up to this time I trusted, I think, too much to the use of merely local applications and antiphlogistics. In all the cases which came under my care afterwards this medicine was used.

To resume:—On the 17th, of the four patients who remained in the house the throats in three were decidedly less inflamed, and that of the fourth (Miss T.) a little less so also. Cont. iod. pot. Throat sponged and touched with caustic.

On the 18th, the throats of the first three were still improving, and the lymph was slowly separating. Miss T., however, was not so well. During the night her breathing had become croupy, and she had got an antimonial emetic, which had the effect of relieving this. Her pulse was now 96, and moderately full; the eyes were slightly suffused, and the throat, though a little less inflamed, was considerably more so now than any of the others. On the soft palate and back of the pharynx there were five small patches of lymph. Cont. u. a. iod. pot.; caustic solution to larynx.

On the 19th, Miss T.'s windpipe decidedly affected; voice husky and changed; throat, however, improving; pulse 96, and moderately soft; sinapism to neck. Iod. pot. every three hours. Throat sponged and touched u. a. To use inhaling mixture.¹

The other three patients free from fever and improving. Lymph had in several places now come off, and left a superficial raw sore. On the fauces of two of them there had been for a day or two some raw-looking patches. Cont. omnia u. a.

On the 20th, the girl who had gone to her own home got feverish and flushed; pulse 100, full, and somewhat hard; took an antimonial emetic, and was considerably better next day. The same

¹ The inhaling mixture given was one I have employed for many years, and was originally, I think, used by Dr Scudamore. Tinct. of iodine, iod. pot., and cicuta, are its active ingredients.

measures were continued in her case as with the others, but she was not convalescent till about a fortnight from being first seized.

On the 21st, Miss T.'s pulse was 96, and soft; huskiness decided; throat nearly as yesterday; blistered surface very tender. *Cont. omnia u. a.*

22d.—Miss T. better; pulse 84, soft; quite easy, though voice still a little husky; thinks the inhaling has done good in removing the laryngeal affection.

Of the other three, my notes say, "that they are now all but convalescent, the smallest portion of lymph adhering in each throat. The throats have now even a blanched appearance, and this extends to mouth and tongue; for, though I have spoken principally of the throat, the tongue, mouth, and fauces have all been injected, and this is no doubt the reason why there has been so much tenacious mucus secreted. The tendency over the whole membrane affected seems to have been to throw out lymph, which, when in small quantity, rendered the mucus tenacious and adhesive, or gave it a semipurulent appearance."

23d.—Miss T. now feels well; pulse 70, soft; hoarseness nearly gone; throat cleaner. Touched and sponged as before. The other three convalescent. Their throats have a remarkably blanched appearance.¹ All to continue iod. pot., night and morning, for a few days, and Miss T. to inhale.

Several other similar cases that had now come under my care, appearing to have been equally benefited by the treatment I have mentioned, I continued it with some confidence. If the patient when I was called was free from fever, but had the throat affected, I contented myself with touching the lymph with the caustic, and sponging the throat, fauces, and glottis with the same solution,

¹ This blanched appearance of the throat which I have very frequently noticed in my diphtheria patients, I have felt inclined to attribute to the treatment, and especially to the action of the iodide of potassium. To test this, I gave four children, free from disease (Nos. 1, 2, 3, and 4, and respectively five, eight, eleven, and twelve years of age), the same solution (ʒi. to ʒxx. of water) three times daily, half a tablespoonful to the youngest, a tablespoonful to the eldest, and three-fourths to the two others, with the following results:—Eighteen hours after taking it, the throats of Nos. 1 and 2 were slightly paler than at first; Nos. 3 and 4 were nearly the same as at first. Forty-two hours after taking it, Nos. 1 and 2 were nearly the same as at first; Nos. 3 and 4 were paler than at first. Sixty-six hours after taking it, Nos. 1, 2, 3, and 4 were all rather paler than at first. Seventy-three hours after taking it, all four had a blanched appearance. Ninety hours after taking it, all four were nearly as at first. One hundred and two hours after taking it, No. 1 was nearly as at first; Nos. 2, 3, and 4 were slightly blanched. One hundred and twenty-six hours after taking it, Nos. 1 and 4 were as at first; No. 2 paler than at first; No. 3 blanched. One hundred and fifty hours after taking it, and thirty-six hours after the iod. pot. had been intermitted, all were as at first. The data here are too limited to allow any very positive conclusion to be drawn, but, as far as the experiment goes, it would seem to indicate that this medicine does exert an influence, though a varying one, on the colour of the capillaries of the throat.

and gave the sol. iod. pot. from three times daily to every two hours, according to the urgency of the case. Where there was any fever, with full, quick pulse, or hoarseness at the commencement, I always premised an antimonial emetic, which I usually prefer, unless the patient is very young; and I gave the same whenever, during the attack, hoarseness came on, or the pulse became full, quick, and what I would call threatening mischief. When there was the slightest hoarseness, I never failed also at once to drop the caustic solution into the windpipe.

A very few particulars of some of the other cases that occurred to me will, I think, be interesting.

Feb. 22d.—Called at night to see an infant which was feverish, and had husky croupy breathing. There was slight erysipelas on arm, apparently from irritation of vaccination; throat inflamed. To have emetic; sponged throat and glottis; poultice to arm.

23d.—Still croupy, and nares red and discharging; throat red, granular-looking. Sponged as before, and gave a teaspoonful of solution iod. pot. every fifth hour. In the evening, better;—throat sponged.

24th.—Quite well.

Shortly before this, another child in the same house was similarly seized, and treated with the sponging and an emetic, and was quite easy next day.

On 21st Feb., was called to Mrs F., who had been visiting a family where there was diphtheria, and who was feverish; pulse full and quick; throat inflamed. Emetic,—to touch throat with powdered alum.

22d.—Pulse 94, soft; throat inflamed; tonsils somewhat swollen, and their surface coated with transparent lymph. Touched lymph with caustic and sponged fauces. Sol. iod. pot. three times daily.

23d.—Pulse 120, rather jerky; throat less injected; less thin lymph on tonsils, but some of a yellow colour on under and back part of soft palate. Throat touched with caustic. Iod. pot. four times daily.

24th.—Pulse 96; yellow lymph on back of uvula; voice rather husky. Touched lymph, sponged fauces, and dropped solution into larynx. Iod. pot. every fifth hour.

25th.—Pulse 98, soft; inflammation of throat and huskiness less. Touched, etc., as yesterday.

26th.—Pulse 104, soft; nares very red; huskiness gone; throat free from inflammation, and looks now only relaxed, with tonsils slightly swollen, and a very little watery-looking lymph adhering. Treatment as before.

27th.—Pulse 90; throat clean, and free from inflammation. Convalescent, though still weak.

This case was of a decided and pretty severe character, but, throughout, it seemed to me that I had a complete control over

the symptoms as they occurred. The following case was still more severe:—

On the evening of 25th February, Mr F. brought his son, five years old, to my house. I found he had been complaining during the day, and was rather feverish. The throat was very much inflamed, the tonsils very much swollen, and the papillæ of the tongue very red and prominent. I sponged the throat, gave the sol. iod. pot. to be taken every five hours, and ordered the boy home immediately. I saw him again in three hours, found him very feverish, and repeated the sponging.

26th.—Restless, and very feverish during night; pulse 124, jerky; breathing thick, but not croupy, being evidently from the throat; tonsils very much enlarged and inflamed, and lymph came up after sponging. Touched with caustic and sponged. Cont. iod. pot. u. a. *Evening*.—Pulse 120, softer, but the breathing from enlarged tonsils very alarming, especially when the child is asleep. Touched; sponged; incised tonsils in three places. Cont. iod. pot. u. a.

27th.—His father in his anxiety administered during the night an antimonial emetic, as I had said if he became croupy this should be given. Pulse 120, softer; breathing quite quiet; tonsils wonderfully improved, his mother remarking when she saw them that they were diminished one-half in size since last night; inflamed appearance of throat also much less. Touched and sponged. Cont. iod. pot. every three hours.

28th.—Wonderfully better; breathing easy; pulse 88, soft; throat clean and nearly free from inflammation, though tonsils still a little swollen; nearly convalescent. Touched and sponged throat. Cont. iod. pot. u. a.

28th.—All but well; sponged; to continue iodide for a few days. An infant in the same family became croupy on the 27th, and two other members had inflamed throats, but all quickly recovered under the treatment mentioned.

At a later period of the epidemic, I had another case in which the tonsils were affected even more seriously.

A brother having been threatened with diphtheritic croup a few days previously, the parents fortunately at once took the alarm, and I saw this patient (W. L., three and a half years old), whose tonsils were usually abnormally large, as soon as he complained. I immediately gave an emetic, sponged the throat and glottis with the caustic solution, and ordered a dessert-spoonful of the sol. iod. pot. every third hour. Notwithstanding this active treatment was continued, on the third day the pulse was upwards of 150, the tonsils were enormously swollen, and the breathing was rough and very loud and alarming. I then incised both tonsils, making two incisions into the one and three into the other. In the evening, the relief from this was very decided, and next day the pulse was 120. On the fifth day, my report says that he had passed a restless night; pulse small

(120 to 130); tonsils clean, but large on upper part of right side, and uvula elongated and interfering with respiration. Excised a portion of the right tonsil, which was so spongy that there was some difficulty in laying hold of it, and also part of the uvula, after which the breathing became comparatively quiet. Continued the other measures, dropping also, twice daily, a little of a caustic solution (two grains to the ounce of water) into the windpipe from the india-rubber tube I mentioned at the close of the first part of this article. This patient also made a rapid recovery. Wine was given here to a moderate extent.

These cases seem to me most encouraging examples of what can be done in "cutting short" one of the most dangerous complications of this disease. From what I have very often seen in scarlatina, I cannot doubt that the state of the throat presented here from the outset would, if not determinedly combated, have rapidly gone on to partial or complete sloughing of the tonsils, and probably also to loss of life. As I shall have something to say on this point when speaking of scarlatina anginosa, I shall merely remark at present, that the only effectual remedy I have found in these formidable cases is incision of the tonsils, and this at an early stage. These cases altogether, especially in the redness and prominence of the papillæ, the enormous swelling of the tonsils, and the character of the pulse, reminded me more of severe cases of scarlatina anginosa than any I had yet seen. Even here, however, it seemed to me that the inflammation affecting the throat was more superficial than I had been accustomed to see it in scarlatina anginosa, and the external glands at the angles of the jaws remained unaffected. This was the more remarkable in the last case, that while it was going on (in July), a younger brother was seized in the same house with scarlatina, in whom these glands became most severely affected. In scarlatina, too, as far as I had ever observed, there was not the same tendency, as in this epidemic, to affect the windpipe, and to effuse lymph there.

In the two next cases, the croup was decided from the first, although it is quite possible the throat affection had before been insidiously stealing on without attracting attention.

On 3d March, I was called to see F. J. and P. J., brothers, the first five and the second six years old. They were both seized with croup during the night, and an emetic had immediately been given to each. In the forenoon, they were still croupy and feverish, and the throats much inflamed. The throats were sponged, and some of the caustic solution dropped into the larynx, and an emetic was given, hot salt applied externally to throat, and the solution of iodide of potassium ordered every four hours.

4th.—Both easier; sponged; hot salt and iod. pot. u. a.

5th.—From an idea that the danger was over, the solution of the iodide had not been given so regularly during the last thirty hours as I wished. This morning, F. J. worse, very feverish, and croupy

cough and breathing more harsh. To have emetic; hot salt externally; sol. iod. pot. every three hours. P. J. easier; iod. pot. u. a. Sponged both.

At midday, P. J. more croupy and feverish, and pulse quick and vibrating. Emetic; hot salt. Cont. iod. pot.

In evening, both still very croupy and feverish; F. J.'s pulse 128, and vibrating; P. J.'s 100, softer. Sponged both; emetic to both; hot salt; Cont. iod. pot.

6th.—Both much easier. P. J.'s throat has now lost its inflammatory appearance. F. J.'s, however, is still much inflamed, and some pieces of lymph have been adhering to sponge. Sponged morning and evening. Iod. pot. every three hours.

7th.—Both still slightly croupy, but quite easy; sponged. Cont. iod. pot.

7th to 10th.—Treatment continued, and patients now convalescent. Another slighter case occurred in the same family.

It will be observed that the practice I adopted in these two cases was, as I had before done, to strike down the inflammatory symptoms, and as quickly as possible to pour in the iodide to counteract the constitutional affection. I did not succeed in getting the latter done at first to my satisfaction; and on the 5th, both cases became more threatening. On this day, one got an emetic twice, and the other once, and there can be no doubt that their condition had become critical. From this date the treatment seemed completely to restrain the disease; and it is proper to direct attention to the circumstance, that the iodide of potassium, on the operation of which I was beginning to rely with some confidence, was now given in full doses.

I shall mention another case, which I think shows very strikingly the real efficacy of this combined treatment.

Under date April 4th, I have it noted, that "I have seen few cases except very slight ones for three weeks, until to-day, when I was called to visit one two miles north from where I had previously seen or heard of any."

The patient, S. S., was a girl three years old. Her mother stated that she had been unwell for a fortnight, and that about a week since she became slightly croupy, and had been gradually getting more so, until the parents had become very much alarmed as to the consequences. For the last week, she had been very restless and feverish occasionally. She had been attended by another practitioner for twelve days, from whom she got a purgative powder, and had had her throat touched with solid caustic five times. The harsh croupy cry of this little patient was heard ringing through the house as soon as I entered it, and the throat and fauces when examined were found inflamed, and the uvula coated with semi-transparent lymph. On the soft palate there were marks of the caustic having been recently applied.

I immediately touched the fauces with the caustic solution, and

dropped some into the glottis; gave an antimonial emetic; had hot salt applied to the throat externally, and a sinapism to the neck and chest, and ordered these to be followed by a dessert-spoonful of the solution of the iodide of potassium every three hours.

April 5th.—Symptoms very much relieved. Mother stated that she slept quietly. Pulse quiet, and no fever; croupiness greatly abated; touched throat with solid caustic, and glottis and fauces with solution. To repeat hot salt and sinapism. Iod. pot. u. a. Father to sponge throat in evening.

6th.—Hardly any lymph remaining, and the inflammation of throat nearly gone, the improvement in its appearance being very remarkable; the mucus on the sponge also quite natural. Child quite easy, and the little that remained of the croupy cough loose and without harshness. Sponged u. a., and father to repeat this in the evening to throat. Iod. pot. u. a., and hot salt at night, the mother remarking that she approved much of the latter, as it put the child into a free perspiration. There are indeed, I think, few better diaphoretics for children.

7th.—Apparently quite well now. When she cried, voice perfectly clear in expiration; in inspiration the slightest possible harshness. Throat free from inflammation, but very slightly swollen, and a little glairy transparent fluid on its surface. Sponged throat and glottis, the fluid brought up on the sponge being natural in appearance. Mother states, however, that a good deal of purulent-looking mucus was expectorated in the morning. Father to sponge in evening. Cont. iod. pot. u. a.

9th.—Easy. Mother says there is still at night a little roughness in voice, but very little indeed to-day. Iod. pot., etc., u. a.

11th.—Convalescent.

Cases such as this, which had been under the care of others before I saw them, were to me particularly valuable, as they enabled me so far to put to the test the mode of treatment I was now employing; and certainly the results here were very gratifying to me as well as to the parents. I may remark, that if there were some circumstances in the prognosis unfavourable, there were others the reverse,—the chief of them being, perhaps, that the disease at the time I got this case in charge ought naturally to have been declining; for I have observed that in other cases the fever which ushers in the attack goes off, where there are not serious local complications, in from ten to fourteen days. Keeping this in view, no one, I think, who had seen this case could nevertheless doubt, *1st*, that on 4th April there was serious danger; and, *2d*, that the remedies here employed rapidly removed that danger.

I have already had occasion to mention, at page 135, the case of a servant who had also been under treatment a week before I saw her. Gargles and hot applications externally had alone, I was informed, been used. The chief affection of the throat was fortunately only on the right side, but there it was more severe than in

any other I have seen in this epidemic. Within two days, the improvement that took place in it, from the change of treatment, was equally as great as in the case I have just cited. I may remark, in passing, that gargles, which this girl was ordered to use, and which I see recommended in this affection by some authors, seem to me about the most inefficient remedies that can be employed; or, rather, they are not remedies at all, for they never reach the parts principally affected, and where the chief danger lies. When a gargle is used, the soft palate and tongue meet and prevent the fluid getting further than the mouth. The fauces are never touched by it, whereas it is generally the latter, including the back of the palate, the posterior part of the tonsils, and the glottis and larynx, that have chiefly to be attended to.

Many authors, I notice, hold that the inflammation in this disease *spreads* from the throat to the larynx; but I doubt whether the simple statement, that the larynx and trachea have a great tendency to be *attacked* with this peculiar inflammation, would not be more safe and correct. My reasons for holding this opinion are,—*1st*, That from the commencement some of the cases I saw had decided croup, but very little throat affection, and yet they evidently belonged to this diphtheritic epidemic; and, *2dly*, That we see in the exanthemata the poisons received into the system produce at once specific local inflammations. In scarlatina, for example, we see cases showing sometimes an intense, it may be a rapidly fatal, dose of the poison, without any serious throat affection; or we see intense inflammation in the throat, without almost any tendency for it to produce croup; while again, in other epidemics, we see a strong tendency for the mouth, nose, internal ear, and eyes to become affected. In different epidemics of measles, also, the same thing is noticed: one example of which that came under my observation struck me very much. Some years since, in a village in this neighbourhood, measles prevailed, and a very large proportion of those seized were also affected with croup. In a colliery, about two miles distant, the same disease was epidemic at the same time; but there I did not see a single case of croup, while a large proportion of the affected had a pneumonic complication.

From the middle of April to the end of May, I saw a number of cases in which the throats, and especially the tonsils, were inflamed, with occasional small patches of lymph on them, and with a strong tendency to affection of the larynx; and with also, in some, a tendency to run into a low and rather severe form of fever, which lasted nearly three weeks. One of the most marked and severe of this kind was a girl, J. A., æt. 10 years. The attack commenced on 20th May, like most of the others, with general inflammatory symptoms, and indications of some pulmonary congestion, but soon degenerated into something like mild typhus, with rather troublesome bowel-complaint. A well-marked crisis occurred on the seventeenth day; and during the attack, the cheeks, soft palate, and indeed

the whole mouth, became covered with a soft creamy-looking lymph, which in many places could be easily scraped off as a paste, or separated as a very soft membrane. Under the use of the caustic solution and the iodide of potassium, the whole of this came off in a mass in twenty-four hours, leaving the mucous membrane red and rawish-looking, but otherwise apparently little injured. A large secretion of a tough mucus took place from the mouth and throat for some days afterwards. In the latter stages of this attack, wine was given freely, and with evident benefit. In this class of cases, I employed at the commencement, and as long as the state of the throat seemed to require it, the same local and general treatment as in the others.

In June, I saw three well-marked mild cases of diphtheria in an isolated situation in the country, in two of which the factor of the breath was very decided, even at the commencement of the attack. There were no detached pieces of putrid lymph to account for this, and I satisfied myself that in these, and also in another case, the factor arose from an affection of the gums, similar to what we see in mercurial salivation. A few touches with the solid caustic on successive days completely removed this symptom, which, though trifling in itself, alarmed the parents much.

In June, too, I had three remarkably interesting examples of diphtheritic croup, ushering in and combined with measles. Two of these were uncommonly severe attacks,—one, among the most severe I ever saw recovered from. In it the croup preceded the measles by three days, and was well subdued before the measles appeared. The papillæ of the tongue were unusually prominent, though not nearly so red as in scarlatina, and each separate papilla seemed to be coated with lymph. In all three, the sponge, as in the others, was used freely, the weak caustic solution was dropped from the tube twice daily into the larynx, and iodide of potassium was given in full doses,—in all, it seemed to me, with the best effects.

I have mentioned all the fatal cases that, up to this date, had occurred to me from diphtheria, or the accompanying croup, in this epidemic, and I have only another to add to the list. This occurred on 14th July, there having been no death from these affections from 13th Feb. to this date among my patients. As this also is the only fatal case of this kind I have as yet had, in which the local and general remedies I had been using were employed, I hope I shall not be thought tedious in mentioning a few particulars connected with it.

I was called on 11th July to see J. A., a girl five years old, who was on a visit here from a distance, and lived close to where diphtheria had first appeared in January. I was afterwards told that she had previously been subject to pneumonic or bronchitic and croupal attacks; and she appeared to me when I first saw her to be labouring under a mild seizure of the former kind. A sinapism had already been applied, and I ordered further only a mixture containing antimonial wine and syrup of squills. I thought so lightly of the attack that I did not see her until next evening, when the croupy

breathing was decided, and had been so during the day I was informed,—the friends, who had never seen a case of croup, thinking it merely bronchitis. As the pulse, though quick, was soft, I contented myself with sponging the throat (which was inflamed, but had no lymph on it) with the caustic solution, dropping the same from the tube into the larynx, and getting hot salt applied externally.

Two hours afterwards (at 10 P.M.), as the pulse had become vibrating and the breathing worse, an emetic was given, the hot salt was continued, and the sponging and dropping into the larynx repeated. At midnight, these were again repeated, and a dessert-spoonful of the sol. iod. pot. ordered every second hour, the pulse being softer and the cough looser.

July 13th.—9 A. M. Has been very distressed during the night; pulse 129, small and jerky; breathing very loud, and much mucus gurgling in windpipe, some which I saw being quite purulent; throat inflamed, and uvula completely coated with lymph. Sponging, etc., u. a.

Noon.—Says she feels somewhat easier; is in a profuse perspiration; pulse 120, slightly jerky; breathing still very croupy, but does not seem distressed. Sponged, etc., u. a.

Midnight.—Have seen her at six o'clock, eight, and now; each time repeating the sponging, etc. The uvula having become much elongated, I excised a portion of it; and at 8 P.M., the pulse having become strong and vibrating, an emetic was again given, and a sinapism was applied to the chest. Croupy breathing has been intense, and distress great. Nevertheless, has slept two hours, and seems now a little easier. To have a tablespoonful of the sol. iod. pot. every two hours.

On the morning of the 14th, as the breathing was getting worse, and the strength was beginning to fail, a telegram was sent for Professor Miller, with the view to his performing tracheotomy; but even before this could be transmitted, she expired.

On the 16th, I examined the body. A quantity of very yellow pus had escaped from the mouth, and, on looking into the latter, the cavity formed by the hard palate was also found completely filled with the same. I first opened the trachea from before, *in situ*, when a yellow semi-fluid lining of lymph protruded. I then removed the parts, and found that this lining of lymph extended from the top of the epiglottis to the bronchial bifurcation, gradually becoming less as it descended, both in thickness and in consistence. Even at the top of the larynx, however, the consistence was not greater than that of slightly-dried flour paste, and throughout it was quite easily detached from the mucous membrane. A good deal of the purulent-looking fluid already mentioned was found in the larynx and trachea, and the epiglottis and surrounding parts gave evidence of pretty severe inflammation having existed there. Old pleuritic adhesions were found on the right side of the chest, and there was some inflammatory congestion of the lower portion of the left lung.

The point in this case which seems to me practically by far the most important is, the nature of the symptoms by which it was ushered in. I have no doubt now that these were diphtheritic from the first, and this disease probably existed even before the bronchitic attack on 11th July. I was called to just such another case a few weeks afterwards, in which the mother stated that the child had been unwell, though still going about, for twelve days before the croupal symptoms appeared, and in this family two other children were found to have their throats affected. Had I, on the 11th, taken the precaution to examine the throat, it is probable that its condition might have excited my suspicions (though there was no lymph on it even on the 12th), and that I might have then treated the

case as I did on the following day. If I had thus gained twenty-four hours in commencing what has seemed to me in other cases the really effectual treatment, the result, I think, might have been very different.

A most valuable aid, in diagnosing these cases at an early stage, I have found to be the prominence of the papillæ of the tongue and throat. Often we see them red and prominent as in scarlatina; but very often also I have noticed them equally or more prominent and quite pale, or only very little injected; in this case giving the throat the granular look I have formerly mentioned. Whenever I now notice the papillæ thus affected, I have my suspicions aroused as to the true character of the case. Early in this affection, too, I have noticed that the tonsils occasionally present a peculiar scooped-out appearance, which we likewise sometimes see in scarlatina.

The lesson which this and the other cases I have seen have especially impressed upon my mind is this, that, while diphtheria prevails amongst us, we must, if we wish to treat our cases successfully, examine the condition of the throat, particularly in children, much more anxiously than is usual under ordinary circumstances; and whenever there is the slightest suspicion of the existence of this disease, I would say, that it is a safe rule, at the least, to sponge the throat with the caustic solution, and to drop a little of the same into the glottis.¹

In this case, as formerly, the important question forces itself on our attention, Did the treatment, local and general, materially modify or prevent the effusion of lymph in the windpipe? On this point it may be observed, in the first place, that, to say the least, we can hardly answer this question in the negative, for the consistency and adhesion to the mucous membrane of the lymph (it barely admits of being denominated false membrane) might have been much less favourable. Indeed, as a membrane, it could hardly have been more favourable, in relation either to tracheotomy, to catheterism of the glottis, or to its spontaneous evacuation. I have mentioned just such an effusion in the mouth which, in twenty-four hours after being brought under treatment, separated and came off in a pultaceous mass. But if in the mouth, may not the same be effected in the windpipe? From the very decided character which this case had assumed even at 8 P.M. on July 12, I suspect that the effusion of lymph into the larynx had been slowly advancing, perhaps for several days. As death took place thirty-seven

¹ In sponging the glottis in children, I make the attendant place the child on her knees with its feet to the right side, and hold firmly with her left hand its head to her left breast, while, with her right hand, she also holds firmly both its hands. I then depress the tongue with a teaspoon, pass the whalebone flat till it reaches the pharynx, and then turn the sponge (which is about the size of a common bean) downwards, and press it forwards on the glottis. This little manipulation, when well managed, occupies only an instant. The tube for dropping the solution into the glottis I manage in a similar way.

hours afterwards, I had therefore, on the one hand, only a short time in which to operate on the disease, while, on the other, I was denied the great advantage which this epidemic has for the most part afforded me, of applying my local and general treatment before the laryngeal symptoms appeared. In all but trifling cases of this description which have come under my care for the six months since the middle of February, I have endeavoured to *anticipate* especially the dangers to the larynx. I have not waited till hoarseness or croup made its appearance, but have daily, once at least, sponged the glottis and got into it a few drops of the caustic solution, using at the same time the iodide of potassium and the other remedial measures mentioned. In the present instance, it will be noticed that the glottis was sponged with a strong caustic solution, and a weaker one dropped into it, eight times in the twenty-eight hours after the croup was observed. In forty-eight hours I have been accustomed latterly to see a very marked improvement on the mouth under the same local and general treatment; and whether it has been that these have been more efficacious than formerly, or that the epidemic has become modified, I certainly have felt a great deal more confidence than I did at first in the management of my cases. Secondly, besides the lymph, there was secreted in the larynx of this little girl a large quantity of a fluid having the appearance of pus, which at last seemed to act as the immediate cause of death by producing suffocation. I have mentioned some others, and I noticed many more, in which also large quantities of a fluid secretion took place. In two of the severe cases of measles with diphtheritic croup I have referred to, enormous quantities were expectorated, but its appearance was that of tough phlegm. In the fatal case, details of which are given at page 137, large quantities of a whitish-looking muco-purulent fluid were secreted, and generally, as far as I have observed, its colour has corresponded pretty closely with that of the lymph effused, and with the intensity of the inflammation existing. Although less dangerous than the effusion of lymph, the secretion of even a tenacious fluid in the larynx, when the strength has begun to fail, becomes a matter of serious moment.

In July and August, I saw a good number of cases occurring over a more extended district than at first, and I noticed that the diphtheritic poison seemed to combine with measles, whooping-cough, and also, I think, with scarlatina. One of the last-mentioned kind had the slightest possible rash, and would have been, under ordinary circumstances, a case of scarlatina simplex, but in this instance the throat affection was severe.

In September, I had a case of intense diphtheritic croup in a child three years old, which I subdued by the same means as I have already mentioned. The caustic solution dropped from the tube seemed to me especially beneficial. An emetic was given five hours after the commencement of the attack, but twelve

had elapsed before the caustic solution was dropped into the larynx.¹

On the whole, it will be seen from what I have said, that the diphtheritic cases I have been treating have been mostly of the sthenic type when severe, some commencing with an inflammatory febrile state, while others had little of this at first; and that the chief danger has arisen from the larynx becoming the seat of inflammatory effusions. With the experience I have acquired, I still rely most upon the use of antimonial emetics for subduing the inflammatory symptoms, followed immediately by the iodide of potassium; and, for subduing the laryngeal symptoms, on the local use of the caustic solution, with the sponge and tube. The latter I have now used very frequently, and I think it will be

¹ The above was written while I was correcting the printer's proof. The subsequent history of this case, as far as it has gone, seems to me of such extreme interest that I cannot refrain from adding a few details.

After the first attack had been subdued, from some misunderstanding, the solution of the iod. pot. was omitted for twenty-four hours, and a severe relapse occurred. On the morning of the 17th Sept., the case seemed desperate; nevertheless, I persevered with the iod. pot. and the sponging, but I did not venture to drop the caustic solution from the tube. In the evening, dissolution seemed impending; the larynx was filled, as in the two other cases of which I have given accounts of the dissections, with gurgling pus, while the child was unable to make the effort necessary to cough or to expectorate it. Under these circumstances, while sitting by the child, I recollected what I had noticed in examining the body of J. A. (page 325), that a great quantity of the purulent fluid had run out of, and was also found in, the mouth after death; and I asked myself what was there to prevent us in effecting the same during life? Accordingly, I had my little patient (patient in every sense of the word) tilted up, and kept for some little time with his head inclining downwards, and was gratified to find that by this means a considerable amount of pus could be got rid of, part of which was swallowed, and part was brought up on the sponge, along with portions of soft lymph of the colour and consistence of butter. I also several times during the evening introduced into the glottis, and passed well into the trachea, in imitation of Dr Green's practice, a very thin piece of whalebone, with a bit of sponge half the size of a split pea attached to it, with the intention of breaking up the soft lymph. When I left, the child was greatly relieved, and I directed that he should be placed with his head in a slightly dependent position, and that his body should be again tilted up whenever the gurgling in the larynx should return. On the morning of 18th Sept., I found him much relieved, and able to cough freely. The iod. pot. had been given every hour, and the throat has now a blanched appearance, presenting a marked contrast with its former inflamed look. I now was able, without giving any annoyance, to drop from the tube the strong caustic solution into the glottis, and to introduce into the same the sponge on the whalebone after being saturated with the solution. I again had my patient tilted up, and got rid of a good deal of yellow pus or very soft lymph, and left him tolerably comfortable.

9 P. M.—Has lain with his head elevated for four hours, and is now more distressed. Cleaned out glottis as before, and placed his head a little lower than his body. Midnight.—More easy. Rept. omnia u. a.

19th Sept.—Considerably easier; a good deal of soft yellow lymph is being coughed up, and comes away on the sponge. Rept. omnia u. a. Evening.—Still easy.

20th Sept.—Going on favourably.

found quite a safe means of introducing such solutions in the early stages of these affections. In the advanced stages, caution in doing so, I have no doubt, will be required. Generally, I have used a weak solution, but when the case has been urgent, I have found a small quantity of a strong solution may be used with safety at the commencement.

How far the iodide of potassium really possesses the power I have ventured to ascribe to it in diphtheria, practitioners apparently have ample opportunities of determining for themselves, as I notice that the Registrar-General states, that last year no less than 285 deaths took place from this disease, and 626 from croup (a large proportion of which, he very properly remarks, was probably diphtheritic), in the eight principal towns of Scotland. I gave this medicine in 74 cases, and of these only one died, though some of them seemed to me very severe; but I am too well aware of the many fallacies that may enter into any such statistical statement, to do more than ask to be allowed to say, that my impression of the benefits to be derived from it, in conjunction with the other remedies employed, is very favourable.¹

From a return I have obtained from the Registrar here, I find that during the first seven months of 1862, the whole deaths in the burgh and parish of Falkirk were 251, of which 1 in 42 is reported as diphtheria or croup; while in the same period of 1863 the deaths have been 226, of which 1 in 9 is reported as diphtheria or croup.

I should have liked much to have tried the comparative efficacy in this disease of some of the other remedies, local and constitutional, which have been recommended by various writers; but as the treatment I was employing seemed to be successful, I thought it best, in the meantime, to give it as full a trial as circumstances permitted me to do.

Since the occurrence of the very interesting scarlatina epidemic which prevailed in Edinburgh in 1833, which was the first I saw, and of which I gave a short account in the Edinburgh Medical Journal for that year, I have seen a number of others in Falkirk, and have particularly noted the variations in the intensity and extent to which the throat and the adjacent parts have been affected. As these are of great practical importance in themselves, and as diphtheria, in different epidemics, seems to undergo like modifications, I shall here notice a few of them. In the Edinburgh epidemic I have referred to, I saw about 300 cases, which were mostly of the sthenic type. In the secondary dropsical affection, which was very frequent, I saw some of the most severe and rapid pneumonias I have met with in practice. The throat affection was

¹ After the first part of this paper had been published, I received, through the kindness of Dr Wade, Birmingham, his "Notes on Clinical Medicine," in which I notice he states that he also had employed with success iodide of potassium conjoined with chlorate of potass.

very often of the same highly inflammatory type, affecting chiefly the tonsils, fauces, and top of the windpipe, but not of the nature of croup. The lungs also were occasionally affected. Lymph was generally found effused over the tonsilar openings, and in neglected cases the whole tonsils became a sloughing mass. I think I noticed, that this intense inflammation and enormous enlargement of the tonsils seemed even to increase in the epidemics I saw for several years afterwards. I have seen the tonsils almost close the faucial passage. Very often their size was such as literally to prevent the caustic being passed when I wished to touch the posterior portions. I used the caustic freely, and when I got the case early I could keep the surface clean. After a time I found the treatment by incision, which I have already referred to, by far the most effectual, and this plan I have now pursued for many years. The pathology in these cases seems to me somewhat similar to that of carbuncle, and this treatment, if adopted early, is equally satisfactory in both. I generally make one, two, or three incisions on each side, according to the mass to be dealt with. Twelve or fifteen years since, I saw pretty frequently a modification of this throat affection. The tonsils did not alone project inwards, but the descending pillars of the soft palate were also projected inwards like perpendicular walls, so as nearly or altogether to touch the uvula. Here, likewise, one or two incisions acted most beneficially. I have seen very little of either of these affections of the throat for several years. In those cases which occurred in the earlier years of my practice, the lymph was effused mostly in the neighbourhood of the tonsils, and, except when such sloughing as I have mentioned took place, no ulceration was to be seen. Some years subsequently, however, in one epidemic, I saw the tongue, cheeks, lips, and even the nose pretty severely affected in this way. There was first a thick, very adherent lymph effused, and when this separated, the raw patches, though not deep, were numerous enough. The local treatment I have uniformly pursued in these cases has been the same as that I adopted in diphtheria, and I think generally with great success, if the case came under my care early; not but that, it must be admitted, there will be a considerable mortality in severe epidemics from a variety of other causes, however well the throat may be attended to. The *earliest* possible attention to it, I think, is as important in scarlatina as in diphtheria; and I formerly drew attention to the fact, that in families where scarlatina prevails its approach may be often detected, from the inflamed appearance of the tonsils, a good many hours before the rash or any threatening symptoms have shown themselves.¹ When we are thus fortunate enough to detect the approach of the enemy, not a moment should be lost in applying the caustic solution.

The affection of the glands and cellular tissue at the angles of the jaw and under the chin, and of the cellular tissue of the neck,

¹ See Edinburgh Medical Journal for 1837.

varies as much in different scarlatina epidemics as it seems to do in diphtheria. With two trifling exceptions, I have seen none of the latter disease where the glands were in the least affected, and yet these are reported to have been seriously involved in some epidemics. Some writers have imagined that the application of the caustic to the throat was a cause of this complication; but, had it been so, I certainly ought to have seen it occur oftener, from the constancy with which I applied this remedy. The tendency to become affected seems to me rather to arise in both diseases from some peculiar and specific quality possessed by the different poisons in each epidemic and case. In the Edinburgh scarlatina epidemic of 1833, as well as in several others I have seen since, the affection of the glands and cellular tissue referred to was most serious. The whole parts became solidified into a mass or masses so consistent that, after death, in cutting through them, it seemed as if the knife was dividing a piece of soft cartilage. I recollect, in afterwards talking with Professor Alison on this subject, that he spoke of some of these cases as having been among the most formidable and hopeless he had ever met with. The immediate effect of this solidification when excessive in extent, or when affecting both angles of the jaws, or these and the parts under the chin simultaneously or in succession, is to cause pressure on the glottis, which alone is often fatal or most distressing. Should the patient survive this stage, inevitable sloughing of much of the parts involved takes place, often of a most frightful character. I have seen the whole of the superficial tissues from the jaw to the clavicle become nearly gangrenous. I noticed, in two very protracted and inveterate cases of this description, that the kidneys had become secondarily affected, and this seemed to aggravate the original affection. A very alarming occurrence in such cases sometimes takes place, viz., ulceration and bleeding from the external jugular vein. I met, a few years since, with one of rather an obstinate character. A little oozing of blood commenced from some small openings in the skin of the neck. These I enlarged and stuffed with lint in the hope of compressing the vein, but with no good effect, and a good deal of blood was lost. The friends got very much alarmed at this, and the more so from the fact that a cousin of my patient had died, I was told, a few months previously from the same cause. I now laid the parts so freely open as to show me exactly where the blood came from, and I found that the opening in the vessel was on the posterior surface of the vein. On passing a piece of lint behind the vessel the bleeding was immediately stopped. Next day, as I found the vein considerably detached from the subjacent parts, I tied it and snipped it through between two ligatures, and the case did well. The only practice which I have seen decidedly beneficial in relieving the tense indurated cellular tissue and glands at the angles of the jaws and under the chin, is free incision of the parts. I have employed this treatment for a number of years, and always with decided benefit to the tissues and relief to the breath-

ing. I make a crucial incision through the indurated parts, which sometimes are of considerable thickness, with a sharp curved bistoury. The gaping wound immediately shows the tension that has been relieved. The only objection to this practice is that it is severe, and that the practitioner will seldom ask the consent of parents, or the latter give it, until the case is becoming desperate. It is much less severe, however, than from description it would appear to be. Where it can be done in good time, it will be found, I think, very successful in relieving this severe complication, though it would be wrong to promise that there will not still be great hazard to life in these severe cases. Should the patient recover, it will be found that the marks left by such incisions, the anticipation of which may form a strong objection to their use, are very trifling. I have a patient in whom, several years since, I had to make at least a dozen incisions for abscesses round the neck after scarlatina, and now it requires a very narrow inspection to discover any of them. In no cases more than in such unpromising ones as I have been describing, will the practitioner find how important it is that, at every stage of the disease, his vigilance should be unceasing. If the throat has from the first been well looked after, the swelled glands and cellular tissue may be successfully treated. When both are at the same time seriously affected, there can be but little hope for the patient.

The epidemics I have seen of late years have been of a much less sthenic type than those I first met with, and the local complications less grave, though occasionally a few cases have presented themselves with these in considerable severity. Wine generally seemed to be indicated, and agreed well, even when given almost from the commencement. Latterly, I have also used the iodide of potassium in scarlatina anginosa, but my cases have as yet been too few to enable me to speak with confidence as to its effects.

ARTICLE V.—*Naval Medical Contributions.* By ALEXANDER E. MACKAY, M.D., R.N.; F.R.S.E., M.R.C.P. Eng., etc. etc.

A TEMPORARY respite from duty has enabled me to put together some of the professional notes taken by me during a tolerably long and varied service in different parts of the world. As some of them are interesting, either from their treating of rare affections, or of diseases peculiar to, or modified by particular climates, or from their bearing upon questions of medical topography, or of naval medical hygiene, it has occurred to me that they might be acceptable to my professional brethren, even in their somewhat excusably imperfect state, and that they might possibly be the means of inciting my brother officers to lay before the profession the results of their observations in the very varied and extensive field in which, by the nature of the service, they are called to work. I propose,

therefore, to draw up a series of papers from the notes and cases I have beside me. The notes upon which these papers are founded formed for the most part the groundwork for the general remarks which medical officers are called upon to make in the journals annually forwarded by them to the office of the Medical Director-General; and as they have no necessary connexion with one another, being taken at different times, in different ships, and in different climates, I shall observe no particular order in introducing them. The first subject I shall allude to in the series is

Epilepsy.

This distressing disease is by no means uncommon among seamen. In the "Statistical Return of the Health of the Royal Navy, for the year 1859," it is shown that 223 cases of epilepsy were under treatment out of the whole force during that year. Of this number, 99 were invalided. The disparity between the number of cases invalided and the numbers under treatment leads to the inference that the greater proportion of these cases had been more than once on the sick-list before being brought before a board of surveying officers; and this is probably the truth. As a rule, a single well-authenticated epileptic seizure is held to incapacitate a man for the naval service. Surveying officers, however, are chary of invaliding men for epilepsy, unless the medical officer under whose care the man may be can vouch for his having been seen in a *bonâ fide* fit by a properly qualified witness; and as a man may have one or two seizures before he is seen in sufficient time to enable the medical officer to testify that the case is one of true epilepsy, while at the same time the seizure may render his being placed on the sick-list for a day or two necessary, so the total number of cases appearing on the sick-list may be more than double that of the patients affected. As it is, however, out of the whole catalogue of diseases during that year, there were only five which exceeded epilepsy in the number of invalidings they occasioned. These were phthisis, diseases of the heart, dysentery (almost exclusively from the East Indies), rheumatism, and hernia. The following table, compiled from the return alluded to, shows the relative proportion of cases on different stations, with the numbers invalided:—

STATIONS.	Total Force on Station.	No. of Cases of Epilepsy Treated.	No. of Cases In- valided.
Home,	19,300	94	43
Mediterranean,	11,100	40	20
North American,	2780	15	5
Brazil,	1000	3	1
Pacific,	2650	16	7
West Coast of Africa,	1590	3	1
Cape of Good Hope,	1160	2	0
East Indies,	6600	16	7
Australian,	585	5	1
Irregular Force,	6060	29	14
Totals,	52,825	223	99

There can be little doubt that in the vast majority of cases the irritation that induces an epileptic seizure is peripheral, and that the habit once acquired, or the condition of the nervous system upon which epilepsy depends once contracted, the very slightest irritation may induce a seizure. A decayed tooth, a slight skin wound, a worm in the rectum, a piece of food difficult of digestion,—any irritation whatever, in fact, may occasion an epileptic fit. And so also nothing can be better calculated to cause a predisposition to epilepsy to evidence itself, than the atmosphere in which seamen sleep. If we estimate the breathing room which the seaman is allowed on the lower deck of a man-of-war under ordinary circumstances, and when “all hands” are in their hammocks, it will be found to average from 110 to 150 cubic feet. I speak of wooden ships. This, although very small as compared with ordinary dwellings on shore, or with what is considered the necessary space required for sanitary purposes, would, if proper use was made of it, and there was a constant current of air passing through it, be abundant. But when it is considered that when a seaman is in his hammock his face is within little more than a foot of the deck over his head, and that all the pure air lies in a stratum of probably from three to four feet from the floor of the deck under him, it will be manifest that during the greater portion of the time he is asleep he must be inhaling a most poisonous atmosphere. This is especially the case during calms when the ship is in harbour. At sea, one watch being always on deck at night, gives a great relief to the watch below; but in harbour all hands “turn in,” and then in warm weather, and in a calm night, the atmosphere under the beams on the sleeping deck is most foul and oppressive, and it is little wonder if the imperfectly oxygenated blood should bring to light any weak point in the nervous system. The sleep of the sailor under such circumstances is most unrefreshing, and the heavy listless appearance the men present when they turn out in the morning speaks very plainly of a sleep which has been no rest. It is true that in a short time the bustle and activity which prevail in a man-of-war, and the natural resiliency of youth and early manhood, restore them to a certain amount of freshness; but it will be noticed that during the meal times, and on most occasions when a chance offers itself, a sailor will take advantage of it to make up his lost time in sleep. One of the most important hygienic problems to be solved in a man-of-war is, how to manage so that the ship’s company shall sleep at a height of, say two feet, or two feet and a half from the deck, and not, as at present, close under the beams. Its solution is unquestionably difficult, especially on the lower deck of a line-of-battle ship, which is, *par excellence*, the gun-deck. It is by no means so difficult, however, on the lower deck of a frigate, where it is even more required. I do not propose, however, entering upon this subject in this place. It has only occurred to me by the way, as having its bearing upon a probably fruitful cause of epilepsy among seamen.

The following case of epileptiform convulsions was in all probability dependent upon imperfect oxygenation of the blood. About 11 P.M. of the 29th of June 1862, while lying in H.M.S. Marlborough, at Corfu, John Street, æt. 21., A.B., fell out of his hammock in an epileptic fit. I was in bed at the time, but hearing the characteristic scream, jumped up at once, and on reaching the lower deck where he was, found him in strong convulsions, and held down by several men. He was at once removed to the sick bay. The convulsive seizures continued to be exceedingly severe, very numerous, and very frequent. The points in which they resembled true epilepsy were the grinding of the teeth, which was very great, and the total insensibility during the paroxysms. They differed, however, somewhat from ordinary epileptic seizures in the absence of foaming at the mouth, and in the loud continuous screaming noise the man made in several of the fits. The approach of a seizure was sometimes indicated by a peculiar sobbing respiration, which speedily became altered into a painful suffocative paroxysm, such as occurs in aggravated cases of whooping-cough or in laryngismus stridulus. This was sometimes relieved by violent coughing, the patient's body being much convulsed; then came a long deep-drawn breath, and quietness followed for a time. On one or two occasions between the paroxysms he was for a few seconds sensible, and complained much of acute pain in the head. During one of these intervals we managed to get him to swallow an emetic composed of pulv. ipecac. and antim. pot. tart., and after this he had only one attack. It had the effect of soothing him wonderfully, and after its full action was induced, he went to sleep. A circumstance which connected the fits in this case somewhat with hysteria was the fact, that after taking the emetic, and before it had caused vomiting, he passed a very large quantity of urine.

This was apparently a mixed seizure, sufficiently epileptiform, however, in my opinion, to induce me to bring him forward for survey and invalid him. I did not think it right to trust him aloft again. He was a very good, steady man, and an excellent sailor. The attack at first appeared like those pseudo-epileptic seizures which we sometimes see following a debauch, and I was certainly at first inclined to look upon it in this light. Neither the breath nor the vomited matters, however, gave out any smell of spirits; the man had not been on shore, and he was by no means addicted to intemperance. He stated afterwards that he believed that a long time previously he had had a similar fit.

Another admitted cause of epileptic seizures, and one to which seamen are exposed in various parts of the world, is malaria. We had one or two cases on board H.M.S. Marlborough, the flagship on the Mediterranean station, during last year, which, from their marked periodicity, might with some degree of propriety be referred to this cause. In the month of October, while at Corfu, a case of epilepsy showing very marked periodicity occurred. The

patient was a marine, John Radge, æt. 26, who stated that for the two or three previous nights he had been seized with very violent headache just as he was about to go to his hammock, that it increased very much in severity for an hour or two, and that after about four hours' suffering it disappeared altogether. He had no headache at the time he complained of these seizures, which was in the morning. His bowels were confined. I ordered him a purgative, which operated freely, and prescribed two grains of quinine, to be taken every two hours from midday until 8 P.M. About 8 P.M., while doing some work in his master's cabin on the orlop deck, he was suddenly seized with giddiness, and fell down in an epileptic fit. While in the sick bay, to which he was immediately conveyed, he had a recurrence of the fits, some of them being very severe. During an interval between the paroxysms he took an emetic, and shortly afterwards the fits left him. On the following night, at the same time, the fits recurred, as they did indeed during the few nights he was afterwards with us, although they were much diminishing both in frequency and severity, as the quinine, which was being pushed, began to tell upon him. He was invalided, and sent to H.M.S. *Hibernia*, to wait a passage to England. While on his passage to the *Hibernia* he had one or two fits. The surgeon of the *Hibernia*, Mr Pickthorn, thinking that the fits might have some connexion with a syphilitic taint, placed the patient upon iodide of potassium, with mercury, and with, temporarily, the happiest results. When, however, on account of salivation, it became necessary to suspend the mercury, the fits recurred at once, although they had been warded off for nearly a whole month. The quinine was not employed as an antiperiodic after he left the *Marlborough*, and when he was discharged from H.M.S. *Hibernia* the fits continued to be very frequent and very severe.

A much more satisfactory case, however, of this kind, inasmuch as we were enabled to follow it out to a temporarily perfect cure, presented itself on the 11th of November, at Malta, in the person of a young man, Charles Young, æt. 24, A.B., who was brought off from the shore, where he had had numerous fits, the result of a debauch. After being brought on board he had two fits accompanied with much grinding of the teeth. An emetic was with difficulty administered, which acted freely. On the morning of the 12th he complained of weakness only. A purgative was administered. He had no seizure on the 12th, but complained of headache, which was persistent on the morning of the 13th. He was ordered gray powder, with rhubarb, three times daily. On that evening he had a fit. The fit was preceded by giddiness. The attack was of very short duration. There was insensibility, with convulsions of the limbs, but no foaming at the mouth nor grinding of the teeth. The powders were ordered to be continued. There was no fit on the 14th, and on the morning of the 15th two grains of quinine were ordered every three hours. That night he had a

recurrence of the fits about 8 P.M., and on the following morning the quinine was ordered to be given every two hours. On that evening (the 16th), there was a recurrence of the fits between 8 and 9 P.M. They were exceedingly mild, and of very short duration. He still complained of some pain in his head. The bowels were free. Appetite good. Skin of normal temperature. Pulse quick. The tongue was a little whitish. The quinine was ordered to be repeated, but to be taken hourly from 4 P.M. to 9 P.M. On the 18th, the report is, "Had another fit last night at 8 P.M., very slight. Bowels quite free. Appetite good. Tongue whitish. Still complains of headache; otherwise feels quite well, with the exception of some tenderness of the glands of the neck." The quinine was ordered to be given every two hours, as before, until 6 P.M., when he was ordered four grains every hour until 9 P.M. On that night he had two fits, an hour later, and exceedingly mild, and on the following morning he said the head was easier. The quinine was continued, with the alteration that from 6 P.M. until 9 P.M. he was to take six grains hourly. On that day (the 19th), he had no recurrence of fits. In the evening, about 6 P.M., he was slightly cinchonised. On the morning of the 20th, tinnitus aurium continued. The quinine was ordered to be continued in two-grain doses every two hours until 4 P.M., and then in hourly doses of the same amount. On the 21st, the report is, "No recurrence of the fits; feels a little deafness only. Cont. mist. quinquæ ut heri." On the 22d, the quinine was only administered three times daily; and on the 23d, he was discharged to duty, but not allowed to go aloft.

This patient continued altogether free from fits until the 4th of March of the present year, when, after a heavy debauch, he had a succession of them. He was brought before a board of surveying officers on the following day, and invalided.

In both of these cases, and especially in that of the man Radge, I confess I had some misgivings as to whether the quinine had not had its share in inducing the first attack. The marked periodicity, however, of the headaches under which he had previously suffered, indicated very decidedly the propriety of its administration; and I regret that his removal from the ship prevented me giving it that full trial which I should have done, and which had been decidedly attended with beneficial results up to the time of his leaving us.

In Young's case, although the attacks from being tertian became quotidian, they were reduced in severity in a very remarkable manner, and the proof that they were not in any way dependent upon the irritation caused by the quinine, was evidenced by the fact, that when cinchonism was established, the headaches and the fits entirely disappeared.

In the "Year-book of Medicine and Surgery" for 1862, the following notice is taken of Dr Payne's observations "On Epilepsy as a Result of Malarious Affection:"—"This form, in its paroxysms, resembles epilepsy, but admits of a much more hopeful

prognosis. It follows, but sometimes after a long period, on malarious infection, which may not have shown itself in paroxysms of ague at any period; so that the convulsive seizures may be the only active symptoms. Cases of infantile convulsions are frequently seen in Calcutta, which stand in very close relation to malarious epilepsy. In all these quinine affords a cure. Payne considers that an hydremic state of the blood is the most important element in the pathology of this class of disorder. He praises the nitric-acid bath as the best therapeutic agent, and corroborates Dr Hammond's statement of its antiperiodic action."

Romberg, in his "Diseases of the Nervous System" (Syd. Soc. Edit., vol. ii. page 205), mentions the case of a young girl, in whom the fits at the commencement of the disease occurred punctually every other day at 5 P.M.; and he says, "Quinine had no other effect than that of effacing the regular type." He mentions also another case, where the attacks "assumed a definite type during the use of the sea-baths. They took place uniformly between 8 and half-past 8 o'clock in the morning on every seventh day. This type disappeared as soon as the patient had left the watering-place."

In the month of March 1862, two cases of epilepsy were invalidated by me from H.M.S. Marlborough, one of the cases occurring in the person of an officer, in whom the disease followed upon an injury to his head, sustained by a fall from his horse a year or two previously, in South America. He had had repeated fits.

Epilepsy undoubtedly incapacitates a man for the naval service. The danger in retaining him, to himself as well as to others, is so great, that, as I have previously stated, it is a rule in the service to invalid every epileptic subject at once. This applies more particularly to the men, whose duties aloft place them constantly in positions of imminent danger. I have grave doubts, however, as to the propriety of immediately invaliding an officer for this disease, more especially if he happens to be young, and otherwise healthy. His duties do not necessarily expose him to so much danger as those of the seamen, and he can be kept longer under observation without detriment to the public service. That this is the view taken at the Admiralty, also, is evident from the fact that officers so invalidated are very frequently reinstated, and employed in active service again. Several cases of this kind have occurred within my own knowledge,—amongst others, that of the officer mentioned above.

While staff-surgeon of H.M.S. Cumberland, on the Brazilian station, a case came under my observation, which was afterwards invalidated, although not at my instance. A young midshipman, while on duty on the poop on a hot day, in the harbour of Rio de Janeiro, was suddenly prostrated with a rather severe pseudo-epileptic fit. He was under my care for a few days, when I discharged him to duty. He was strictly forbidden, however, to go into the rigging, or into the tops. On the arrival of the ship in

England to be repaired, I wrote to his father, and suggested to him that, as the ship was about to return to the Brazils, and it was not desirable that his son should serve in a hot climate again for some time, he should use what interest he had to have him transferred to some ship on the home station. It happened that he was appointed to the Royal Albert, of which ship I had in the meanwhile been appointed surgeon, and I had him consequently again under observation. During an epidemic of measles we had, he contracted the disease, and was sent to hospital. While convalescing, and able to move about outside, he exposed himself a good deal to the sun on one occasion in the grounds of the hospital, and had a similar fit to that which he had in Rio de Janeiro. He was brought forward at the first survey in the hospital, and at once invalided as an epileptic subject. He has since been reinstated, however, and I think that there is every probability he may outgrow the tendency he has shown to these affections.

An epileptic subject on board ship must always be a source of anxiety to a medical officer. The facilities which abound there for accidents of the gravest kind, and the great difficulty of obviating the risks incurred by epileptics in consequence, cannot fail to render such cases objects of much care and watchfulness. It is not to be forgotten, moreover, that however rare it may be, mania may suddenly develop itself in an epileptic subject; and that, surrounded as men are on board a ship of war with weapons of destruction, the most fearful consequences might result in such a case before the maniac could be secured. Without magnifying the risks (unquestionably small) of such an accident occurring, they ought on no account to be overlooked. While in H.M.S. Royal Albert, I invalided a young officer, a master's assistant, for epilepsy. The disease had followed upon a severe gunshot wound in the groin, accidentally sustained two years previously. Some time after he was invalided, in a paroxysm of mania he deliberately shot his own brother. Such a case as this should render us very careful to exclude all suspicious cases from those which might otherwise be retained for observation. In this case the fits were very frequent, very violent, and of long duration.

INFORMATION REGARDING THE REQUIREMENTS IN PRELIMINARY
AND PROFESSIONAL EDUCATION OF THE VARIOUS
LICENSING BODIES.

WE commence by laying before our readers the Recommendations of the General Medical Council in reference to General and Professional Education, as amended in 1863.

I.—GENERAL EDUCATION AND EXAMINATION.

The Medical Council are of opinion that it is desirable—

1. That all students pass an examination in general education before they commence their professional studies.

2. That the time of commencing professional studies shall be understood to be the time of commencing studies at a Medical School, and that no qualifying body be held to have complied with the recommendation of the Council which shall allow the examination in general education to be passed after the commencement of professional study.

3. That, as far as may be practicable, testimonials of proficiency granted by the National Education Bodies, according to the following list, be accepted, with such modifications as the Medical Council may from time to time think proper to make.

1. A Degree in Arts of any University of the United Kingdom, or of the Colonies, or of such other Universities, as may be specially recognised from time to time by the Medical Council.

2. Oxford Responsions or Moderations.

3. Cambridge Previous Examinations.

4. Matriculation Examination of the University of London.

5. Oxford Middle Class Examinations (Senior).

6. Cambridge Middle Class Examinations (Senior).

7. Durham Middle Class Examinations (Senior).

8. Durham Examinations for Students in Arts, in their second and first years.

9. Durham Registration Examination for Medical Students.

10. Dublin University Entrance Examination.

11. Queen's University, Ireland, two years' Arts course for the Diploma of Licentiate in Arts.

12. Preliminary Examinations at the end of A.B. course.

13. Middle Class Examinations.

14. Matriculation Examinations.

15. First Class Certificate of the College of Preceptors.

16. "Testamur" granted by Codrington College, Barbadoes.

17. Degree of Associate of Arts granted by the Tasmanian Council of Education, with a certificate that the student has been examined in Latin and Mathematics.

4. That the examination in general education be eventually left entirely to the Examining Boards of the National Education Bodies recognised by the Medical Council.

5. That no certificate of proficiency in general education, which does not affirm the proficiency of the candidate in Latin, be deemed a sufficient proof of preliminary education previous to the commencement of professional studies.

6. That students who cannot produce any of the testimonials referred to in the third resolution, be required to pass an Examination in Arts, established by any of the bodies named in Schedule (A) of the Medical Act, and approved by the General Council, provided that such examination be in every case conducted by a special board of Examiners in Arts.

7. That without professing to lay down any complete scheme of general education for persons intending to become members of the medical profession,

the Committee recommend that the Scheme of Examination in Arts of the Licensing Bodies be, as nearly as practicable, similar to that of any of the National Education Bodies above specified.

8. That after 1st October 1861, all medical students be required to be registered.

9. That the lists of students registered be closed within fifteen days after the commencement of each session or term.

10. That no student beginning professional study after September 1861, be registered, who has not passed an Arts Examination, in conformity with resolution 3 or 6.

11. That the several bodies in Schedule (A) of the Medical Act, either jointly or severally, open a register for students commencing their studies in medicine, in the form annexed.

SCHEDULE.

Register of Medical Students.

No.	Name.	Date of Registration.	Place of Study.	Arts Examination and Date.

12. That after January 1863, all junior middle class examinations be excluded from the list.

13. That the said register be opened on the first day of each session or term, and remain open for fifteen days; and that within seven days after its close, the officer in charge transmit a duly authenticated copy thereof to the registrar of the Branch Council of that division of the United Kingdom to which the body or bodies belong.

14. That the registrar of the Branch Council lay the copy of the said register before the Branch Council, in order that the Branch Council may take whatever steps may seem necessary to secure its accuracy; and that it be thereafter transmitted, with any remarks by the Branch Council thereon, to the Executive Committee.

15. That the licensing bodies shall have power to admit exceptions as to the time of registration, if satisfactory to them, and transmit lists of such exceptions to the Branch Council of the part of the United Kingdom in which such exceptions shall have been granted, with the grounds stated.

16. That the various educational and licensing bodies be requested to transmit to the Registrar of the General Council, returns, embodying any alterations which they may from time to time introduce into their courses of general study and examinations, which qualify for the registration of Medical Students; and that a copy of such returns be sent by the registrar, as soon as convenient, to each Member of the General Council.

II. PROFESSIONAL EDUCATION.

17. That the age of twenty-one be the earliest age at which any professional license shall be obtained.

18. That four years of professional study be required, after the examination in general education.

III. PROFESSIONAL EXAMINATIONS.

19. That the professional examinations be divided into at least two distinct parts; that the first be not undergone until after the termination of two years of study; and the final examination not until after the termination of four years of study.

20. That the first professional examination be conducted partly in writing

and partly *vivâ voce*; and that such parts as admit of it be made as practical and demonstrative as possible.

21. That the second examination be conducted partly in writing, partly *vivâ voce*, and practically, so far as may be convenient and attainable.

22. That the professional examinations be held by the several licensing bodies (except in special cases) at stated periods, to be publicly notified.

23. That returns from the licensing bodies in Schedule (A) be made annually on the 1st of January, and in the subjoined form, to the General Medical Council, stating the number and names of the candidates who have passed their first as well as their second examinations, and the number of those who have been rejected at the first and second examinations respectively; and that the registrar forward a sufficient number of forms, with a notice for their being returned, in due time.

24. That it be recommended to all the examining boards that they should require from every candidate for examination before them, a statement, signed by himself, whether he has, or has not, been rejected within three months by any of the examining boards included in Schedule (A) of the Medical Act.

25. That it is not desirable that any University of the United Kingdom should confer any degree in Medicine or Surgery, whether that of Bachelor, Doctor, or Master, upon candidates who have not graduated in Arts, or passed all the examinations required for the Bachelorship in Arts, or the examinations equivalent to those required for a degree in Arts.

FORM OF RETURN,

According to Recommendation No. 23 of the General Medical Council, 1862.

PASSED.				REJECTED.	
1st Examination.		2d Examination.		1st Examination.	2d Examination.
No.	Name.	No.	Name.	No.	No.

No changes of any importance have been made during the past year in the requirements of the various licensing boards. The new regulations in all the Scottish Universities are now in force. At the University of St Andrews, the examinations under the old system have been discontinued; candidates are now required to have passed two years at least of their four years of medical and surgical study in one or more of the following universities and colleges, viz.:—The University of St Andrews; the University of Glasgow; the University of Aberdeen; the University of Edinburgh; the University of Oxford; the University of Cambridge; University College, London; King's College, London; Trinity College, Dublin; Queen's College, Belfast; Queen's College, Cork; and Queen's College, Galway. The remaining two years of medical and surgical study may be passed either in one or more of the universities and colleges above specified, or in the hospital schools of London, or in the School of the College of Surgeons in Dublin, or under such private teachers of medicine as may from time to time receive the recognition of the University Court, provided that, in the last case, the fee charged shall not be less than that for the like course of lectures charged in the university of the town in which the teacher lectures. The university may, however, confer the degree of Doctor of Medicine on ten registered practitioners annually, provided they be above forty years of age, and pass a satisfactory professional examination; the fee payable under these circumstances is fifty guineas.

The following pages contain an abstract of the regulations of the various licensing bodies :—Pages 344–349 contain, in a tabular form, the requirements of the different boards under the head of preliminary education. The first two pages contain the requirements of the English and Irish Educational Bodies. The Middle Class Examinations of the Universities of Oxford, Cambridge, and of Ireland, are divided into two classes—a senior and a junior. After 1st January 1863, only the former of these will be accepted; and for this reason, and also in order to save space, we have only given the requirements of this class. Candidates for the Oxford and Cambridge Examinations must be under eighteen years of age, and must pass in all those subjects to which an asterisk is not attached, and in at least two of the sections which are so designated. At the University of London Matriculation Examination, candidates must pass in all the subjects specified, except that a knowledge of *either* French or German will be sufficient. At the Registration Examination of the University of Durham, a knowledge of French is not imperative. At the Queen's University in Ireland, candidates must pass in the four first sections of the Table, and in at least two of the others.

The four succeeding pages show the requirements of the Scottish Universities, of the Irish Colleges, and of the Colleges of Physicians and Surgeons in the three kingdoms. In the case of each of these bodies, the candidate must pass in *all* the subjects to which no asterisk is attached, and in *two* of the others so designated. The only exception is in the case of the College of Surgeons of England, where candidates are required to pass in only *one* of the extra branches.

By the new statutes of the Scottish Universities, three medical degrees have been instituted, those, namely, of Bachelor of Medicine (M.B.), Master in Surgery (C.M.), and Doctor of Medicine (M.D.). The degree of C.M. is not, however, conferred on any one who does not at the same time obtain the degree of M.B. All candidates for the two first degrees are required to pass the full preliminary examinations, and to have been engaged in professional study for four years before being admitted to the final examination. The degree of M.D. may be conferred on any Bachelor of Medicine twenty-four years of age, who has been engaged, subsequently to his having received the degree of M.B., for at least two years in medical and surgical practice, provided that he is either a Graduate in Arts of a university, or that he has passed an examination in Greek and in Logic or Moral Philosophy, in addition to the other branches of a preliminary examination. Those, however, who had commenced their medical studies previous to the period at which the statutes came into force at the different universities, are entitled to graduate either under the system in force before that time, or under that now established, according as they may prefer to comply with the regulations in force before or after these dates. Consequently, those who began their medical studies previous to the dates mentioned below, may either take the degree of M.D. at the age of twenty-one, and without a preliminary examination, except in Latin; or they may obtain the degrees of M.B. and C.M., in which cases, however, they will be required to pass the full preliminary examination. This alternative refers to candidates who began their medical studies before the following dates :—In Edinburgh, before the 4th of February 1861; in Glasgow, before the 1st of October 1861; and in Aberdeen, before the 5th of November 1861.

Subjects of Examination.	UNIVERSITY OF OXFORD. Mid. Class Examination.	UNIVERSITY OF CAMBRIDGE. Mid. Class Examination.	UNIVERSITY OF LONDON. Matriculation Examination.
ENGLISH.	Grammar and Composition.	Grammar and Composition.	Grammar and Composition.
HISTORY.	Outlines of English.	Outlines of English.	English, to end of Seventeenth Century.
GEOGRAPHY.	Particularly of the British Dominions.	Particularly of Europe.	Modern.
ARITHMETIC.	Principles and Practice.	Principles and Practice.	Ordinary Rules, including Fractions and Extraction of Square Root.
RELIGIOUS KNOWLEDGE.	Old Testament from birth of Samuel to captivity of Zedekiah. Gospel of St Mark, and Acts of Apos.	2d Samuel, 1st Kings, Gospel of St Luke. Church Catechism. Whately's Evidences.	...
GEOMETRY.	Euclid, Books I. to IV.	Euclid, Books I. to VI. Plane Trigonometry.	Euclid, Books I. to IV.
ALGEBRA.	To end of Quadratic Equations.	To end of Quadratic Equations.	To Simple Equations inclusive.
NATURAL PHILOSOPHY.	General knowledge of.	Elementary Principles.	Mechanics, Hydrostatics, Pneumatics, Acoustics, Optics.
LATIN.	"A fair knowledge."	Cæsar, de Bell. Gall., Lib. I. & II. Virgil, Æneid, Lib. VI. English into Latin.	Cæsar, Gallic War, Books V. & VI. Terence, the Adelphi.
GREEK.	"A fair knowledge."	Xenophon, Anabasis, Book II. Homer, Illad, Book IV.	Homer, Illad, Book V. Xenophon, Anabasis, Book III.
FRENCH.	"A fair knowledge."	Fables of La Fontaine. History during Reign of Louis XIV. English into French.	Cornellie, Cinna; Bossuet, Histoire Universelle.
GERMAN.	"A fair knowledge."	Andersen, Bilderbuch ohne Bilder. English into German.	Schiller's Revolt of the Netherlands, B. II. & III.
BOTANY.	Vegetable Physiology.	Description and Classification of Plants.	...
ZOOLOGY.	Animal Physiology.	Description and Classification of Animals.	...
CHEMISTRY.	General Principles. Analysis.	General Principles. Inorganic.	General Principles. Inorganic.

UNIVERSITY OF DURHAM. Registration Examination.	DUBLIN UNIVERSITY. TRINITY COLLEGE.	QUEEN'S UNIVERSITY, IRELAND. Mid. Class Examination.	COLLEGE OF PRECEPTORS. First Class Certificate.
Grammar and Writing to Dictation.	Composition.	Grammar and Composition.	Grammar, Composition, and Literature.
English, Reign of Elizabeth.	English.	English, especially of reign of Queen Anne.	English, to end of Eight- teenth Century.
Great Britain, Ireland, Italy.	Modern.	Chiefly Europe.	General.
Ordinary Rules, including Vulgar and Decimal Fractions.	Principles and Practice.	Ordinary Rules.	Ordinary Rules.
Gospel according to St Matthew.	...	...	1st and 2d Samuel, Acts of the Apostles.
* Euclid, Book I.	...	* Euclid, Books I. to IV.	Euclid, Books I. and II.
...	First Four Rules and Fractions.	* To end of Quadratics.	To end of Quadratics.
...	...	* Mechanics, Hydrostatics.	Any branch.
One of the following : Cæsar, de Bell. Gall. B. IV. Cicero, de Amicitia. Virgil, Æneid, Book I. Horace, Odes, Book I.	Two of the following : Livy, Lib. III. IV.; Virgil, Æneid, Lib. I. II. III. VI.; Sallust; Horace, Odes; Hor. Satires & Epistles; Terence, Andria and Heautontimorumenos.	* "A fair knowledge."	Sallust, Catilina, and Vir- gil, Æneid, Lib. I. to III.; or Cicero de Senectute, and Horace, Od. Lib. I. to III.
" Xenophon's Anabasis, Book I. Grammar.	Two of the following : Homer, Iliad, L. I. to III.; Greek Test., Gospels St Luke and St John, Acts; Euripides, Phœnissæ; Sophocles, Ajax; Plato, Socrates; Lucien; Xen- ophon, Anab. L. I. to III.	* "A fair knowledge."	Xenophon, Anab. Lib. I. to III. Euripides, Medea.
* Voltaire, Histoire de Charles XII. Grammar.	...	* "A fair knowledge."	Books not announced.
...	...	* "A fair knowledge."	Books not announced.
...	...	* Vegetable Physiology.	...
...	...	* Animal Physiology.	...
...	...	* General Principles. Practical Analysis.	General knowledge.

Subjects of Examination.	UNIVERSITY OF EDINBURGH. Preliminary Examination.	UNIVERSITY OF GLASGOW. Preliminary Examination	UNIVERSITY OF ABERDEEN. Preliminary Examination.
ENGLISH.	Writing from Dictation, Composition.	Grammar and Composition.	Composition, Writing to Dictation.
HISTORY.	...	...	...
GEOGRAPHY.	...	...	...
ARITHMETIC.	Common Rules, including Decimals.	Common Rules, including Decimals.	Common Rules, including Decimals.
GEOMETRY.	Euclid, Books I., II., and III.	Euclid, Book I.	Euclid, Book I.
ALGEBRA.	To Simple Equations.	...	To Simple Equations.
MECHANICS.	Lardner's Mechanics.	Lardner's Elements of Natural Philosophy.	Golding Bird's Elements, Part I., or Galbraith and Houghton's Manual.
LATIN.	Virgil, <i>Æneid</i> , Lib. VI., A Latin Prose Author.	Cæsar, <i>de Bello Gallico</i> , Lib. II.; Virgil, <i>Æneid</i> , Lib. I.	Cæsar, <i>de Bello Gallico</i> , Lib. I.; Virgil, <i>Æneid</i> , Lib. III.
GREEK.	Xenophon's Memorabilia.	Xenophon, <i>Anabasis</i> , Book I., or Gospel according to St John.	Xenophon, <i>Anabasis</i> , Book II.
FRENCH.	Voltaire, <i>Histoire de</i> <i>Charles XII.</i>	Voltaire, <i>Histoire de</i> <i>Charles XII.</i>	Voltaire, <i>Histoire de</i> <i>Pierre le Grand.</i>
GERMAN.	Lessing's <i>Lacoon</i> .	Schiller, <i>William Tell</i> .	Schiller, <i>William Tell</i> .
HIGHER MATHEMATICS.	Euclid, Books I. to VI. Trigonometry and Conic Sections. Algebra.	Euclid, Books I. to VI. Algebra, including Quad- ratics, Elements of Tri- gonometry.	Plain Trigonometry. Quadratic Equations. Binomial Theorem. Logarithms.
NATURAL PHILOSOPHY.	Elements of, by Golding Bird and Brooke.	Elements of, by Golding Bird and Brooke.	Golding Bird, Light, Heat, Electricity.
LOGIC.	Formal & Verbal Fallacies. Theory and Methods of Induction.	Whately's <i>Logic</i> , Books II. and III.	Thomson's <i>Laws of</i> <i>Thought</i> ; or Morell's <i>Hand-</i> <i>Book of Logic</i> .
MORAL PHILOSOPHY.	Dr Brown's Lectures on the Emotions and on Ethics.	Dugald Stewart on the Active Powers; or Dr Fleming's Manual.	Reid's <i>Active Powers</i> ; or Wayland's <i>Elements of</i> <i>Moral Science</i> .
NATURAL HISTORY.	...	Geology or Zoology.	Classification of Animal Kingdom, Vertebrata.

QUEEN'S COLLEGE, BELFAST. Matriculation Examination.	QUEEN'S COLLEGE, COKE. Matriculation Examination.	QUEEN'S COLLEGE, GALWAY. Matriculation Exam.	ROYAL COLLEGE OF PHYSICIANS, LONDON. Preliminary Examination.
Grammar and Composition.	Grammar and Composition.	Grammar and Composition.	Grammar and Composition.
Roman, to death of Nero.	Grecian, to death of Alexander the Great; Roman, to Augustus.	Outlines of Grecian and Roman.	...
Outlines of Ancient and Modern.	Outlines of Ancient and Modern.	Outlines of Ancient and Modern.	...
Common Rules, including Decimals, Simple Interest, and Extraction of Square Root.	Common Rules, including Decimals and Simple Interest.	Common Rules, including Decimals.	Common Rules, including Decimals.
Euclid, Books I. and II.	Euclid, Book I.	Euclid, Book I.	Euclid, Book I.
To Simple Equations, inclusive.	Elements.	To Simple Equations, inclusive.	To Simple Equations, inclusive.
...
Any two of the following: Horace, Virgil, Cicero in Catilinam, Sallust, Livy, Cæsar.	One of the following: Virgil, Æneid, Lib. I. and II.; Sallust, Catilina. Cæsar, de Bell. Gall, Lib. I.	Cæsar, de Bello Gallico, Lib. V., or Virgil, Æneid, Lib. I. English into Latin.	Cornelius Nepos, Vita Mil- tiadis; Virgillii Æneis, Lib. II.; or Cicero de Amicitia; Horace, Odes, Book I
Any two of the following: Homer, Iliad, Books I., II.; Euripides, Alcestis; Xenophon's Anabasis, Books I. and II.; Lucian.	One of the following: Homer, Iliad, Books I. and II.; Xenophon, Ana- basis, Books I. and II.; Lucian, Walker's Selec- tions.	Xenophon's Anabasis, Book I. Grammar.	...
...
...
...
...	...	...	Mechanics, Acoustics, Optics, Hydrostatics, Pneumatics.
...
...
...

Subjects of Examination.	ROYAL COLLEGE OF PHYSICIANS, EDINBURGH. Preliminary Examination.	KING'S & QUEEN'S COLL. PHYS., IRELAND. Preliminary Examination.	ROYAL COLL. OF SURGEONS. ENGLAND. Preliminary Examination.
ENGLISH.	Composition and Writing to Dictation.	Composition.	Grammar and Composition.
HISTORY.	...	...	Outlines of English History.
GEOGRAPHY.	...		Europe, especially the British Isles.
ARITHMETIC.	Common Rules, including <i>Decimals</i> .	To end of Decimal Fractions.	To end of Vulgar Fractions.
LATIN.	Cæsar, de Bello Gallico, Lib. IV.; Virgil, Æneid, Book VI.	Virgil, Æneid, Lib. I. and II. Or Sallust. Or Cæsar, de Bell. Gall., Lib. I. and II.	Cæsar, de Bell. Gall., Book I.
GEOMETRY.	Euclid, Books I., II., and III.	Euclid, Books I. and II.	Euclid, Books I. and II.
ALGEBRA.	To Simple Equations, inclusive.	...	To Simple Equations, inclusive.
NATURAL PHILOSOPHY.	Hydrostatics and Pneuma- tics (Lardner's Hand- book).	...	Elementary Mechanics.
GREEK.	St Mark's Gospel. Xenophon's Anabasis, Book II.	Homer's Iliad, Book I. Or Xenophon's Anabasis, Book I. Or Walker's Lucian.	St John's Gospel.
FRENCH.	Voltaire, Histoire de Charles XII.	One Book, at option of Candidate.	Voltaire, Histoire de Charles XII.
GERMAN.	Schiller, Geschichte des dreissigjährigen Kriegs, Book III.	One Book, at option of Candidate.	Schiller, Geschichte des dreissigjährigen Kriegs, Books I. and II.
BOTANY.	Anatomy and Organo- graphy.—Cruciferae, Um- belliferae, Leguminosae, and Liliaceae.	...	Classification of Plants.
ZOOLOGY.	General Classification— Vertebrata.	...	Classification of Animals.
CHEMISTRY.	...	...	Elementary Facts.

ROYAL COLL. SURGEONS, EDINBURGH. Preliminary Examination.	ROYAL COLL. SURG. IRELAND. Preliminary Exa.	FACULTY OF PHYS. & SURGS. GLASGOW. Preliminary Exam.	APOTHECARIES' COY., LONDON. Preliminary Exam.	APOTHECARIES' HALL, IRELAND. Preliminary Exa.
Composition and Writing to Dictation.	...	Composition and Writing to Dicta- tion.	Grammar and Com- position.	Composition.
...	English: the Stuart Period.	English.
...
Common Rules, including Decimals.	...	Common Rules, in- cluding Decimals.	Common Rules, to end of Decimals.	To the end of Decimals.
Cæsar, de Bello Gallico, Lib. IV.; Virgil, Æneid, Book VI.	Virgil, Æneid, Lib. I. to V.	Cæsar, de Bell. Gall., Lib. IV. Virgil, Æneid, Lib. VI.	Cæsar, de Bell. Civili, Lib. I. Or Virgil, Georgics, Lib. I. Or Cicero, pro Milone.	Sallust, Catilina; Virgil, Æneid, Lib. I, II, and III.
* Euclid, Books I, II, and III.	...	* Euclid, Books I, II, and III.	Euclid, Book I.	Euclid, Books I and II.
* To Simple Equations, inclusive.	...	* To Simple Equations, inclusive.	Algebra, including Simple Equations.	To end of Simple Equations.
* Hydrostatics and Pneu- matics (Lardner's Hand- book).	...	" Hydrostatics and Pneumatics (Lard- ner's Handbook.)	Elements of Statics and Dynamics.	...
* St Mark's Gospel. Xenophon's Anabasis, Book II.	St John's Gospel.	* St Mark's Gospel. Xenophon, Anabasis, Book II.	* Xenophon, Memora- bilia. Herodotus, Book I.	Gospel of St John. Lucian, 20 Dia- logues. Or Homer's Iliad, Books I. and II.
* Voltaire, Histoire de Charles XII.	...	* Voltaire, Histoire de Charles XII.	...	Voltaire, Histoire de Charles XII. Or Telemaque.
* Schiller, Geschichte des dreissigjährigen Kriegs, Book III.	...	* Schiller, Geschichte des dreissigjäh- rigen Kriegs, Bk. III.	...	...
" Anatomy and Organo- graphy.—Cruciferae, Umbel- liferae, Leguminosæ, and Liliacæ.	...	" Anatomy & Organ- ography.—Cruci- feræ, Umbelliferae, Leguminosæ, and Liliacæ.	...	...
* General Classification— Vertebrata.	...	* General Classifica- tion—Vertebrata.	...	...
...

COURSE OF STUDY REQUIRED BY THE VARIOUS BOARDS OF THE UNITED KINGDOM.

	Age.		Anatomy.	Dissections.	Chemistry.	Practical Chemistry.	Materia Medica.		Physiology or Institutes of Medicine.	Surgery.	Practice of Medicine.		Midwifery.	Medical Jurisprudence.		Pathology or Morbid Anatomy.	Botany.	Natural History.	Practical Pharmacy.	Clinical Surgery.	Clinical Medicine.	Hospital Attendance.	Practical Midwifery.	Dispensary or Public Practice.	Vaccination.
	Years.	Months.					Months.	Months.			Months.	Months.		Months.	Months.										
Edinburgh University, M.B. & C.M., . . .	21	6	6	6	6	3	6	6	9	6	6	6	3	3	3	3	3	3	3	3	6	24	6 mos. 8 cas.	6	
University of Glasgow, M.B. & C.M., . . .	21	6	6	6	6	3	6	6	6	6	6	6	3	3	3	3	3	3	3	3	6	24	do.	6	
University of Aberdeen, M.B. & C.M., . . .	21	12	6	6	6	3	6	6	6	6	6	6	6	3	3	3	3	3	3	3	6	24	do.	6	
University of St. Andrews, M.D., . . .	22	12	6	6	6	3	6	6	6	6	6	6	3	3	3	3	3	3	3	3	6	24		6	
London University, M.B., . . .	21	6	15	6	6	1 cts	1 cts	6	6	6	6	6	1 cts	1 cts	1 cts	3	3	3	1 cts	2 yrs.	2 yrs.	4 yrs.	20 cas.	6	
University of Durham, M.B. & M.D., . . .		6	6	6	6	3 m	6	6	9	6	6	6	6	6	6	3	3	3	3	9	9	18			
Dublin University, M.B., . . .		18	6	6	6	3	6	14	9	6	6	6	6	6	6	3	3	3	3	27	27	3 mo.			
The Queen's University of Ireland, M.D., . . .		12	6	6	6	3	6	12	6	6	6	6	6	6	6	3	3	3	3	12	12	24			
Royal College of Physicians, London, . . .	21	12	6	6	6	3	6	12	6	6	12	6	6	6	6	3	3	3	3	3	9	24	24 cas.		
Royal College of Physicians, Edinburgh, . . .	21	6	6	6	6	3	6	6	6	6	6	6	6	6	6	3	3	3	3	3	24	24 cases			
King and Queen's Col. of Phys., Ireland, . . .	21	6	12	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	3	27*	9*	33			
Royal College of Surgeons, London, . . .	21	12	6	6	6	6	3	12*	12	12	6	6	6	6	6	3	3	3	3	18	9	27			
Royal College of Surgeons, Dublin, . . .	21	18	6	6	6	6	3	18	18	6	6	6	6	6	6	3	3	3	3	6 or 12	6	24	6 cas.	6	
Royal College of Surgeons, Edinburgh, . . .	21	12	6	6	6	3	3	3	6 or 12	6	6	6	6	6	6	3	3	3	3	6 or 12	6	24	6 cas.		
Royal College of Surgeons, Glasgow, . . .	21	12	6	6	6	3	3	3	3	6 or 12	6	6	6	6	6	3	3	3	3	6 or 12	6	24	6 cas.		
Faculty of Phys. and Surgeons, Glasgow, . . .	21	12	6	6	6	3	3	3	3	6 or 12	6 or 12	3	3	3	3	3	3	3	3	6 or 12	6 or 12	24	6 cas.	6	
For Double Qualification by Royal Col. . .	21	12	6	6	6	3	3	3	3	6 or 12	6 or 12	3	3	3	3	3	3	3	3	6 or 12	6 or 12	24	6 cas.		
College of Phys. and Surg. of Edinburgh, . . .																									
For Double Qualification by Royal Col. . .	21	12	6	6	6	3	3	6	6 or 12	6	6	6	6	6	6	3	3	3	3	6 or 12	12	24	6 cas.		
College Phys., Edinburgh, and Faculty of . . .																									
Physicians and Surgeons of Glasgow, . . .	21	12	6	6	6	3	3	6	6	6	12	3	3	3	3	6	3	3	Appr.	9	27	27	20 cas.	9 mo.	
Apothecaries' Hall, England, . . .	21	6	12	6	6	3	3	6	6	6	6	6	6	6	6				Appr.		18	27	30 cas.		

ARMY MEDICAL DEPARTMENT.—Candidates for admission to the Competitive Examination required for the Army Medical Service, must possess distinct qualifications to practise Medicine and Surgery, which may be derived either from separate bodies, or from a single body, provided that body has power to grant a legal qualification in each department.

ROYAL NAVY MEDICAL SERVICE.—Candidates must possess such Diplomas or Licenses as would qualify a civilian to practise Medicine and Surgery. Candidates for the appointment of Medical Officer are required to be registered under the Medical Act, and must be legally qualified to practise as a Medical Officer. Candidates for the appointment of Assistant Medical Officer must be registered as Medical Officers in England, Scotland, or Ireland.

* Students from the Schools of Scotland are admitted to examination at the Royal College of Surgeons of England, if they have followed the course of study required by the regulations of the Royal College of Surgeons of Edinburgh. Students in Scotland, therefore, are not required to attend more than one course of Physiology, six months the regular course, six months Clinical Medicine, and two or four months Hospital.

Information should be taken out, etc., must be obtained by consulting the published Charts of the Colleges, etc. Students should apply to the Secretary to each Board which they intend to pass for a detailed copy of its Regulations.

MEDICAL SCHOOLS OF SCOTLAND, 1863-64.

WINTER SESSION.

SUBJECTS.	UNIVERSITY OF EDINBURGH.	SURGEONS' HALL, EDINBURGH.	UNIVERSITY OF GLASGOW.	ANDERSON'S UNIVERSITY, GLASGOW.	UNIVERSITY OF ABERDEEN.	UNIVERSITY OF ST ANDREWS.
Anatomy, Systematic and Practical, with Demonstrations.	Professor Goodsir.	Dr Handyside.	Dr A. Thomson.	Dr George Buchanan.	Professor Struthers.	...
Physiology, or Institutes of Medicine.*	Dr Bennett.	Dr Sanders.	Dr A. Buchanan.	Dr E. Watson.	Dr Ogilvie.	Dr Oswald Bell.
Chemistry, and Practical Chemistry.	Dr Playfair.	Dr Macadam. Dr Murray Thomson. Dr C. Brown.	Dr T. Anderson.	Dr Penny.	Professor Brazier.	Dr F. Hedde.
Materia Medica and Therapeutics.	Dr Christison.	In Summer.	Dr Easton.	Dr Morton.	In Summer.	...
Practice of Medicine.	Dr Laycock.	Dr W. Begbie.† Dr Haldane.	Dr Gairdner.	Dr Cowan.	Dr Macrobin.	...
Surgery.	Professor Miller.	Mr Spence.† Dr Watson.† Mr Edwards.† Dr Jos. Bell.	Prof. Lister.	Dr Macleod.	Professor Pirrie.	...
Midwifery.	Dr Simpson.	In Summer.	Dr Pagan.	In Summer.	Dr Dyce.	...
Natural Philosophy.	Professor Tait.	Mr Lees.	Professor W. Thomson.	Dr Taylor.	Professor Thomson.	Professor Fischer.
Natural History.	Professor Allman.	...	Dr Rogers.	...	Professor Nicol.	...
General Pathology.	Dr Henderson.	Dr Grainger Stewart.	...	...	...	...
Clinical Medicine.	Drs Bennett and Laycock.	Drs W. Begbie,† Sanders, Haldane, and J.M. Duncan.	Dr Bell and Dr Ritchie.		Dr Kilgour.	...
Clinical Surgery.	Professor Syme.	Mr Spence,† Dr Gillespie.	Dr A. Buchanan and Dr Lyon.		Dr Keith.	...

* This course is equivalent to that given under the name of general anatomy and physiology in the English Schools. Special schedules are issued by the London Boards for their Scotch students, which should always be inquired for.

† These are not conjoint courses, but separate ones by the gentlemen named.

‡ This is a joint course.

MEDICAL SCHOOLS OF SCOTLAND, 1863-64.

SUMMER SESSION.

SUBJECTS.	UNIVERSITY OF EDINBURGH.	SURGEONS' HALL, EDINBURGH.	UNIVERSITY OF GLASGOW.	ANDERSON'S UNIVERSITY, GLASGOW.	UNIVERSITY OF ABERDEEN.
Practical Anatomy and Demonstrations.	Professor Goodsir.	Dr Handyside	Dr A. Thomson.	Dr George Buchanan.	Professor Struthers.
Botany.	Dr Balfour.	...	Dr W. Arnott.	...	Dr Dickie.
Materia Medica.	...	Dr Scoresby-Jackson.	...	...	Dr Harvey.
Midwifery.	...	Dr Keiller.* Dr Duncan.*	...	Dr Paterson.	...
Medical Jurisprudence.	Dr MacLagan.†	Dr Littlejohn.†	Dr Rainy.†	Dr Leishman.	Dr Ogston.†
Comparative Anatomy.	Professor Goodsir.	Dr Handyside.	Dr A. Thomson.	...	Prof. Nicol.
Histology.	Dr Bennett.	Dr Sanders.	...	...	Dr Ogilvie. Mr J. Thomson.
Practical Chemistry.	Dr Playfair.	Dr Macadam. Dr Murray Thomson, Dr Crum Brown.	Dr T. Anderson.	Dr Penny.	Prof. Brazier.
Natural Philosophy.	...	Mr Lees.	...	...	Professor Thomson.
Natural History.	Professor Allman.	...	Dr Rogers.	...	Prof. Nicol.
Clinical Medicine.	Drs Bennett and Laycock.‡	Drs W. Begbie,† Sanders, Haldane, and J. M. Duncan.	Dr Fraser and Dr R. Scott Orr.		Dr Kilgour.
Clinical Surgery.	Prof. Syme.	Mr Spence.† Dr Gillespie.	Dr Morton and Dr G. Buchanan.		Dr Keith.

* These are not conjoint courses, but separate ones by the gentlemen named.

† Drs Rainy and Ogston deliver their courses only in winter. Drs MacLagan and Littlejohn give courses during both the winter and summer sessions.

‡ This is a joint course.

For additional Summer Courses on special subjects, see the Prospectus of each School.

LIST OF HOSPITALS, DISPENSARIES, ETC., IN CONNEXION
WITH THE MEDICAL SCHOOLS OF SCOTLAND.

EDINBURGH.

ROYAL INFIRMARY, including LOCK HOSPITAL. Upwards of 560 Beds. Visits daily from 12 till 2 P.M. Physicians—Drs Bennett and Laycock, Professors of Clinical Medicine; Dr Simpson, Clinical Professor for Diseases of Women; Drs J. W. Begbie, W. R. Sanders, D. R. Haldane, Clinical Lecturers; Dr J. Matthews Duncan (on Diseases of Women).

Surgeons—Mr Syme, Professor of Clinical Surgery; Mr Spence, Dr Gillespie, Clinical Lecturers; Dr P. H. Watson. Extra Surgeon, Professor Miller. Assistant Surgeon, Mr Edwards. Consulting Surgeon, Dr Dunsmure. Ophthalmic Surgeon, Mr Walker. Pathologist, Dr Stewart.

ROYAL MATERNITY HOSPITAL. 36 Beds; 279 in-patients and 380 out-patients annually. Consulting Physicians—Drs Simpson and Moir. Physicians—Drs Thomson, Weir, Keiller, A. Wood. Consulting Physician, Dr Begbie. Ordinary Surgeon, Dr Dunsmure.

HOSPITAL FOR SICK CHILDREN. 40 Beds. Consulting Physicians—Professor Christison and Dr C. Wilson. Physicians—Drs Graham Weir, Newbigging, and Keiller.

ROYAL PUBLIC DISPENSARY AND VACCINE INSTITUTION. About 11,000 patients annually. Medical Officers—Drs Spence, Pattison, Somerville, Haldane, Wright, Sanders, Husband, Littlejohn, D. Wilson, Ritchie, Pow, Stephenson. Physicians-Accoucheurs—Drs Keiller, Matthews Duncan, Wright, Pattison. Superintendent of Vaccination, Dr Husband. Visits daily at 2 P.M. Vaccination on Wednesdays and Saturdays at 12 noon.

NEW TOWN DISPENSARY. 7800 patients annually. Medical Officers—Drs J. Hunter, Watson, Dycer, Scoresby-Jackson, Inglis. Consulting Surgeon, Dr MacLagan. Physicians-Accoucheurs—Drs Dumbreck, Pagan, Simpson, Inglis. Superintendent of Vaccination, Dr J. Hunter. Visits daily at 2 P.M. Vaccination on Tuesdays and Fridays from 12 to 1.

ROYAL ASYLUM FOR THE INSANE. About 660 patients. Physician, Dr Skae. Lectures and Clinical Visits in summer.

EYE INFIRMARY, George Street. Surgeons—Benjamin Bell, Esq., F.R.C.S., and Dr Watson, F.R.C.S. Consulting Surgeon, Dr Hamilton. Open daily at 1 P.M.

EYE DISPENSARY, Cockburn Street. 1150 patients annually. Surgeons—Mr Walker, Dr Wilson. Consulting Surgeon, Dr Duncan. Open Monday, Wednesday, and Friday, at 1 P.M.

EAR DISPENSARY, Cockburn Street. Dr T. Keith. Tuesdays at 12. Average, about 20 cases daily.

EAR DISPENSARY. Dr Jackson. Mondays and Fridays, 11 to 12.

DENTAL DISPENSARY, Cockburn Street. Consulting Surgeons—Professor Goodsir, Mr Spence, F.R.C.S. Consulting Dentist, Mr Nasmyth, F.R.C.S. Surgeon Dentists—Mr Imlack, F.R.C.S., Dr John Smith, Dr Orphoot. Daily, 9 to 10 A.M.

GLASGOW.

ROYAL INFIRMARY. 600 beds. Visits daily at 8.30 A.M. Physicians—Drs Ritchie, Fraser, Scott Orr, and W. T. Gairdner. Dispensary Physicians—Drs Steven and Leishman.

Surgeons—Drs J. Morton, G. Buchanan, Professor Lister, and Dr Lyon. Dispensary Surgeons—Drs Dewar and Macleod.

LOCK HOSPITAL. 47 beds. Medical Officers—Drs G. H. B. Macleod and D. Forbes.

LYING-IN HOSPITAL AND DISPENSARY. 20 beds: in-patients 369, out-patients 635. Physicians—Drs J. G. Fleming, J. G. Wilson. House-Surgeon, Mr G. Gentle.

UNIVERSITY LYING-IN HOSPITAL AND DISPENSARY. 500 patients. Physicians—Drs Pagan and Leishman. Assistant, Mr J. Christie.

WESTERN PUBLIC DISPENSARY. Medical Officers—Drs A. B. Buchanan, David Forbes, T. M. Anderson, and John Cargillie. Surgeon-Dentist, Mr G. Buchanan.

ROYAL ASYLUM FOR THE INSANE. About 680 patients. Physician-Superintendent, Dr A. Mackintosh.

EYE INFIRMARY. 24 beds: 2459 patients annually. Consulting Surgeons—Drs Rainy and A. Anderson. Ordinary Surgeons—Drs W. Mackenzie, W. Brown. Assistant Surgeon, Dr G. Rainy.

DISPENSARY FOR SKIN DISEASES. 1100 patients annually. Medical Officers—Drs M'Call Anderson and A. B. Buchanan. Lectures and Practical Instruction in Summer.

ABERDEEN.

ROYAL INFIRMARY. Upwards of 280 beds. Visits daily at 10 A.M. Consulting Physician, Dr Dyce. Physicians—Drs Kilgour, Williamson, Harvey, Carr.

Surgeons—Messrs Keith, Pirrie, Kerr, Fiddes. Ophthalmic Surgeon, Dr Wolfe. Pathologist, Dr Beveridge.

GENERAL DISPENSARY. 5000 patients annually. Medical Officers—Drs Leslie, Galen, Smith, Forsyth, Fraser, Reith. Visits daily at 9.30 A.M. Vaccination every Wednesday at 3 P. M.

LUNATIC ASYLUM. Above 300 patients. Consulting Physician, Dr Macrobain. Resident Physician, Dr Robert Jamieson. Clinical Lectures in summer.

OPHTHALMIC INSTITUTION. 500 patients. Surgeon, Dr Cadenhead.

Part Second.

REVIEWS.

On the Diseases of the Chest, including Diseases of the Heart and Great Vessels: their Pathology, Physical Diagnosis, Symptoms, and Treatment. By HENRY WILLIAM FULLER, M.D. Cantab., Physician to St George's Hospital, etc., etc. London: Churchill: 1862.

DR FULLER, by his former writings, has deservedly acquired the character of a careful and accomplished physician; and the work before us is calculated to confirm and enhance his reputation. In spite of all the attention that has been paid to diseases of the chest, the subject is by no means worked out; and though many excellent treatises had been published, there was abundance of room for another, embracing the results of the most recent investigations.

We may at once say that we entertain a very favourable opinion of Dr Fuller's work. It contains a full and generally accurate account of the subject of which it treats. It is by no means, however, a mere compilation, but gives the results of an intelligent experience; and the author is not afraid, at times, to express his dissent from generally-received opinions. Our limits prevent us from doing more than giving the merest outline of its contents. We regret this the less, however, because, as the work necessarily enters very largely into details, a correct idea of its merits can only be obtained by perusing it as a whole.

The work is divided into four parts, the two first devoted to the lungs, the third and fourth to the consideration of the heart. The first part treats of the principles of physical diagnosis, and their application to the investigation of diseases of the lungs. It commences with an account of the different methods of physical diagnosis we have at our disposal, such as inspection, palpation, measurement of the chest, percussion, and auscultation. We have next an account of the character and mechanism of the healthy respiratory sounds, and of their modifications in disease; of the resonance of the voice in health and disease; and of the adventitious sounds produced within the chest by the act of breathing. These chapters are well and carefully prepared, and are well calculated to assist the student in acquiring a knowledge of a somewhat complicated subject. We have said that Dr Fuller is not a blind follower of recognised authorities, but that he thinks for himself, and is prepared to suggest explanations in place of standard statements which he believes to be unsatisfactory. In illustration of this, we

may lay before our readers two extracts, the first treating of the mechanism of ægophony, the second of the interpretation of the sound known as "dry clicking." In his explanation of both of these phenomena we believe Dr Fuller to be substantially correct.

"What, then, is the cause of ægophonic resonance? Setting aside those spurious cases in which an ægophonic character is said to attach to the vocal resonance in healthy women and children, and in which this peculiarity, if indeed it exists, must be attributable to the shrill, tremulous character of the natural voice—I say, setting these aside, there are two conditions which I believe to be invariable accompaniments of, and indeed essential to the production of ægophony—1st, a condition of lungs calculated to give rise to bronchophonic resonance; 2dly, the existence of some agency able to impart to that resonance a tremulous, bleating character. This must be one of two kinds, either some tenacious secretion vibrating in the bronchial tubes and producing an effect analogous to the vibrating tongue of reed instruments, which possibly may be, though I somewhat doubt it, an occasional cause of ægophonic resonance over hepatized lungs; or, which I believe to be its source in cases of pleuritic effusion, the impulse of the vibrating and partly solidified lung against the costal pleura, an effect—viz., the repeated impulse of one solid vibrating body upon another—exactly analogous to that which takes place in the schoolboy's trick of speaking upon thin paper placed over the teeth of a comb, or in that of speaking, as Punch and Judy's showmen do, with a thin disk of metal or ivory so placed in the mouth as to lie between the lips and the teeth, and so to obstruct the egress of air from the mouth, in which case an ægophonic character is imparted to every sound by the jarring vibrations excited by the repeated impulses of the disk against the teeth. Under ordinary circumstances solidified lung lies closely in contact with the costal pleura, and practically for all purposes of vibration may be considered as connected with it; consequently, unless some cause of jarring, tremulous vibration exist within the lung itself, as in the instance of a vibrating piece of mucus in a bronchus, the vocal resonance will be purely bronchophonic, and not ægophonic. But just at the surface of a pleuritic effusion there must be a point at which the lung is barely separated from the chest walls, and in which the bronchophonic vibrations of the lung must lead to that light, jarring impulse of the visceral against the costal pleura, which analogy proves conclusively to be a frequent cause of a peculiarly tremulous, bleating sound—the sound which characterizes ægophony."

"Another modification of bubbling is 'clicking.' Authors are not agreed as to the mode of origin of this sound, nor, indeed, have I ever met with a reasonable interpretation of it. Dr Walshe says of dry clicking, 'the rhonchus, though its mechanism is unexplained, is of considerable diagnostic importance;' and again, in reference to moist clicking, 'Its mechanism is almost as obscure as that of the dry crackling.' But careful consideration of the conditions essential to its existence, and repeated experiments as to its mode of production, have convinced me that when it is met with in the lungs it is due to the sudden and forcible passage of air through a small bronchus, the sides of which, at one or more points, have been brought close together by external pressure, or have been agglutinated, as it were, by tenacious mucous secretion. Thus its common cause is the presence of tubercle pressing here and there upon the walls of the smaller bronchi, and not only rendering them impervious, but exciting slight local irritation, with the consequent secretion of viscid tenacious mucus. The bronchi are completely obstructed, and therefore do not admit of the production of the ordinary sounds either of bubbling or vibration; but now and then, perhaps two or three times in the course of an inspiration, their walls are separated for a moment under the pressure of the inspired air, and as the obstruction yields and the sides of the passage are forced asunder, the connecting mucus, which is drawn out into a sort of membrane, suddenly bursts, and a

sharp click is produced, which conveys an impression of dryness or moisture, according to the quantity and tenacity of the fluid.

"Dry clicking, like dry crepitation, originates in connexion with a very small quantity of viscid secretion, and is met with almost exclusively during inspiration; whilst humid clicking, like humid crepitation or fine bubbling, is connected with a somewhat larger quantity of fluid, and though most distinct and constant during inspiration, occurs not unfrequently during expiration. When dry clicking first makes its appearance, it is audible only with forced respiration, and even then does not accompany each inspiratory act; but after a time it becomes more persistent, and is heard accompanying ordinary respiration. The dry variety passes, after a time, into the moist variety, and the latter, as the pulmonary disease progresses and softening commences, is replaced by the ordinary sound of bubbling. This arises from a diminution in the amount of pressure on or obstruction of the bronchi whence the sound originates, and from an increase in the quantity of fluid in the air passages, whereby it happens that the air no longer encounters mere films of mucus, but, by forcing its way through a more copious secretion, creates distinct bubbling."

The second part of Dr Fuller's work treats of the pathology, diagnosis, symptoms, and treatment of the individual diseases of the lungs, under the heads of pleurisy, pneumonia, bronchitis and its results, pulmonary consumption, and intrathoracic tumours. In treating of these diseases Dr Fuller arranges the structural changes and corresponding physical signs in parallel columns; but although this facilitates comparison, we do not think it is a good arrangement for the student, who requires a more detailed explanation than such a method can afford, and to whom such tables should be merely given as subsidiary.

In the third part of his work, Dr Fuller considers the principles of physical diagnosis as applied to the investigation of diseases of the heart and great vessels; while, in the fourth, he treats of the special diseases of these organs. With reference to the cause of the first sound of the heart, regarding which there has been much difference of opinion, Dr Fuller agrees with Dr Billing and Dr Halford in believing that it is due to the forcible tension of the mitral and bicuspid valves, and that the muscular contraction of the ventricles, the rush of blood over the surface of the ventricles, and through the aorta and pulmonary artery, and the impulse of the heart against the walls of the chest, do not, under ordinary circumstances, contribute to the production of the first sound. Dr Fuller's arguments in support of his own opinion are clearly put, and are well worthy of consideration.

On the subject of cardiac murmurs we differ in one important point from Dr Fuller. In speaking of the signs of obstruction of the mitral orifice Dr Fuller maintains that the murmur indicative of this lesion is "comparatively rare," and that "it rarely masks, though it may somewhat obscure the second sound." From both of these statements we must express our dissent. In the first place, the murmur in question is, according to our experience, not uncommon, and, in the second, the murmur is not with the second sound, but precedes the first. This last statement is no unnecessary refinement, and, indeed, if we bear in mind what is going on

in the heart at the time when the sounds and the intervals of silence occur, it is evident that it is not with the second, but immediately before the first sound that the murmur in question must be produced. In a table in Dr Fuller's own work, showing the occurrences which take place at different periods of the heart's action, the following perfectly correct statement of what takes place during the second interval of silence will be found. "The ventricles are still relaxed, and blood continues to pass into them from the auricles, and into the auricles from the large vessels, until at length the auricles contract, and by forcing their contents through the auriculo-ventricular opening, complete the dilatation of the ventricles, and distend their cavities." Now, if this statement be kept in mind, it becomes evident that an obstructive mitral murmur *must* correspond to the period of contraction of the auricles, that is to the second interval of silence, or, in other words, must occur immediately *before* the first sound. In the normal condition the passage of the blood from the auricles to the ventricles gives rise to no sound, but when the orifice is obstructed, and particularly if, as usually happens, the corresponding auricle is hypertrophied, we have an auricular-systolic murmur. This subject is one which is very generally misunderstood, and for a fuller consideration of it we would refer our readers to Dr W. T. Gairdner's excellent chapters on cardiac murmurs, in his treatise on Clinical Medicine.

We have said nothing of Dr Fuller's views as to the treatment of the various diseases he considers, but may briefly remark, that though his directions are on the whole judicious, he gives mercury more freely than we should consider advisable. Mercury has great power both for good and evil, and ought not to be used indiscriminately; we were therefore somewhat surprised to find Dr Fuller make such a statement as the following:—"It is obvious, then, that no case of pericarditis occurring in a strong and healthy person can be safely treated without mercury." The statement we would make is almost the converse of this; for although we have on one or two occasions seen the use of mercury apparently useful in the treatment of pericarditis, we have far oftener found it ineffectual, or do positive harm.

In conclusion, we have only to repeat our hearty commendation of Dr Fuller's work.

Die Chronische Metritis. Von F. W. VON SCANZONI.
Chronic Metritis. By F. W. VON SCANZONI.

THE distinguished place which Scanzoni holds among continental gynaecologists, apart from the intrinsic merits of his work, claims for it careful consideration. But the book itself scarcely requires the support of a great name; it is founded, to a great extent, on scientific data, and to a still greater extent upon observations

which are called practical. Of these last Scanzoni's reputation gives him a large supply; and we are bound to say that he evidently is not merely a careful observer and practitioner, but also that he is not, like many popular men, under the influence of mere enthusiasm, abnegating common sense and its dictates, and enthralled by love of novelty or partisanship for remedies and plans.

The book is in its tone and manner decidedly better than any of its predecessors. In according to it this honour we are not necessarily derogating from that of other authors, for the improved and improving scientific position of gynækology not only renders the subject of this book more susceptible than formerly of a high kind of scientific treatment, but demands such treatment. Scanzoni has satisfied these requirements to a very great extent, and this credit must be cordially awarded to him. At the same time we must assert that a good deal of our author's writing—especially in the chapter devoted to pathological anatomy—is a mere specious or spurious kind of scientific writing. It is all very important, very true, and very well stated. It all deserves to be stated, and Scanzoni has done it well, and his book will be useful, even in the chapter referred to, as a fixed point and starting place for inquirers. But, as in the rest of his book, he is too long and discursive; and if he had devoted some concentrated study to his subject, he would have condensed his book within much smaller limits. Indeed, considerable portions in various parts, as for example the description of the trichomonas, should, on a very slight reflection, have been subjected to the process of elision. But, alas! this narrower inspection of his work would have brought the difficulties of the subject more clearly before him, and might have deterred him from pursuing it. This kind of influence is not so much a consequence of the perception of mere difficulties as of a kind of philosophical dissatisfaction and aversion to avow opinions on subjects in which little or nothing can be really said to be better than the conjecture of a wise and qualified man, or the result of empirical observation. Many of the highest minds are so subjected to these conditions as to maintain silence, and for this very reason we hail the labour of Scanzoni with its imperfections. In a general way the chief of these may be described as the want of real scientific connexion between the parts of the book. A superficial appearance of connexion is ingeniously made the most of, and it is not Scanzoni's fault that it is not real. His book is a valuable step towards the attainment of reality. To illustrate by analogy,—let any one reflect on the pathology, symptoms, diagnosis, prognosis, and treatment of pneumonia, and compare it with what Scanzoni has to say of the same in chronic metritis, and he will be very blind if he do not see how the former is scientifically developed to a degree that prevents comparison with the latter. We shall not pursue this course of reflection further, but end by simply stating that essential questions appearing very early in this study, if philosophically pursued,

are, by Scanzoni's labours, not in the slightest manner solved. He does not indeed get the length of stating them, far less of appreciating their importance. Such questions relate to the identification of the disease, the connexion between symptoms and pathological appearances, the distinction of primary from secondary pathological changes, and the symptoms of these two classes of changes, etc., etc.

The title of Scanzoni's book implies his theory of uterine ailment. What is uterine ailment? It is a term that expresses no theory, but indicates a great field of medical practice, a great source of human infirmity and suffering. It is not uterine procidentia, it is not uterine cancer, it is not uterine fibroid tumour, it is not ovarian dropsy, it is not the fleshy tubercle of the female urethra, and it is not a great many other things. What it is no one can yet decide. That is the question. It is a field in which many gynaecologists are labouring scientifically and practically. It is a field in which little is well or really known, in which therefore the weaker and the less honest minds delight to wander. It is a field in which physicians require wisdom and common sense, and honesty of purpose, more than in most. It is a field in which (as Scanzoni candidly admits) practitioners can palliate, but can scarcely cure. It is a field in which new remedies and new inventions grow rank, a favourite resort of fashionable doctors, water-curers, advertisers, and all sorts of charlatans. It includes much or little of descent of the uterus, of dysmenorrhœa, of menorrhagia, of catarrh of the cervix and body of the uterus, of ovarian irritation, of uterine neuralgia, of uterine displacements, irritable bladder, constipation, etc., etc. Several theories of uterine ailment have prevailed in medical writing, but have never extensively prevailed in medical practice. The chief of these are indicated by the terms leucorrhœa, ulceration of the cervix uteri, displacement of the uterus, and chronic metritis. All of them have expressed some truth, have increased progress, have been almost fanatically fostered, have been found wanting as scientific theories, and have yielded little more than disappointment in practical results.

The latest theory is that adopted by Scanzoni, and expounded in his "*Chronische Metritis*." The theory is not Scanzoni's, although he has first put it down as the title of a book. We could cite many authors who have clearly enunciated the same doctrine of the importance of affections of the uterine body, and who have done so, not after other theories have become moribund, but while they still flourished. This is a small matter, and so also is the fact, that the book was written to supplant the works of Henry Bennet, and of Becquerel, which appear to Scanzoni to have ruled the practice of Great Britain and France respectively, and to have governed or directed opinion in the two countries. The very word theory, as we here use it, may be objected to by our readers. We shall not defend it farther than by saying, that it

is a convenient way of speaking, and expresses a vague, but well-understood meaning. It is more important to point out a grave error which Scanzoni commits, when he ascribes to the profession generally in Britain and France the views of Bennet and of Becquerel. These authors have written books which have been much read, and which have sold well. But such circumstances do not indicate certainly the current of professional opinion, and we shall not, in like manner, ascribe to Scanzoni and his "*Chronische Metritis*" an aristocratic superiority over all his countrymen. What is the practice of the great body of practitioners? What are the views of the leading practitioners? What is taught in the schools? These questions must be answered by Scanzoni before his subjection of England and France to Bennet and Becquerel can be listened to. For ourselves, we hesitate not to say, that while Dr Bennet's work has been much read and valued among us, it has at no time held the position indicated by Scanzoni. We leave the Frenchmen to answer for themselves.

We believe Scanzoni's book and his views to be much in accordance with views already expressed in this Journal, and to constitute a decided progress. At the same time we have no doubt they will share the fate of the others, will diminish in importance, and be supplanted by still better founded on more extended knowledge; and this depreciation will happen because the book prematurely enunciates a great theory. Without meaning to compare the work of Dr Tilt, "*On Uterine and Ovarian Inflammation*," etc., recently noticed in this Journal, with that of Scanzoni, we desire to say that that author has, in directing attention to the ovaries and their minor diseases, opened up a course of inquiry which will encroach greatly on the scope and influence of chronic metritis as given by Scanzoni. Neither will the importance of the cervical affections be annihilated or nearly so, as Scanzoni evidently thinks. An old and erroneous doctrine long prevailed, that the uterus was the chief and centre of the genital organs of woman. This physiological position of the uterus has been overthrown or at least immensely modified. Scanzoni claims for the uterus the same pathological position, and in doing so he errs. The ovaries and the cervix uteri are both important organs which, in pathology, have no secondary position, and do not exist only as uterine appendages.

The book is divided into six chapters. The first, on ætiology, is very interesting. Besides the causes of acute inflammation and of deficient involution after delivery, attention is directed to the great influence of derangements of menstruation, of versions and flexions, and of chronic catarrh of the uterus, also of diseases of the heart and lungs. But disturbance of the circulation or dilatation of the vessels is the great proximate cause, according to our author; an important condition, no doubt, but one for which we think he fails to find the proper place.

The second chapter, on pathological anatomy, is founded chiefly

on microscopical researches by Rokitsansky, Foerster, Wedl, and Virchow, and is occupied much with the question of the relative increase of the connective tissue and of the muscular elements, with the fatty condition of those tissues, and with their loosening out or infiltration, or their increased compactness or induration. These two last conditions he regards as successive stages in the disease.

The third chapter is on symptoms; and here, while we are satisfied on the whole, we have to confess very strongly our sense of a confusedness or jumbling together of all the symptoms of the diseases included by us under uterine ailment. There is no scientific progress made in this department.

In the fourth chapter, on differential diagnosis, we do not find much information. But we must notice that there is an indirect admission of an amount of hypertrophy arising from simple chronic metritis, which is absurd. Surely Scanzoni cannot seriously believe that, under such circumstances, the uterus ever rises to the navel from mere size, or that it can be liable on the same ground to be confused with a pregnancy in the third or fourth month, or with a uterus containing a fibroid of the size of an apple.

The fifth chapter discusses in a very admirable way the course, results, and prognosis of the disease.

But of all the chapters, we prefer the last. It is very notable for its moderation and simplicity; and this is particularly to be admired, seeing that the subject is therapeutics, and that the author is a great, a famous practitioner. He frankly admits that while much may be done to palliate and to improve substantially, yet cure cannot be expected. And our readers will attach more weight to our judgment when we add that we cannot agree with his views on some important points, especially on the value of "derivantien" and of "cetzmittel" or caustics. At the same time, this most excellent chapter has a serious deficiency, in avoiding or omitting the question of rectification of versions and flexions, accidents on which much weight is laid in the ætiological chapter. This can scarcely be interpreted otherwise than as a condemnation of all rectificatory interference. Scanzoni should either have entered into a full discussion of the question, or should have expressed a decided opinion regarding it.

A Manual of Zoology. By M. MILNE EDWARDS. Translated by R. KNOX, M.D., F.R.S.E. Second Edition, edited by C. CARTER BLAKE, F.G.S. London: Renshaw: 1863.

THIS manual has long since taken its place as one of the best introductions to the study of zoology. In France it is recognised by the Council of Public Instruction, and in this country it has obtained an extensive circulation. In bringing it under the notice of our readers, we have merely to state that this edition exhibits various improvements which render it even more worthy than formerly of the favourable reception it has met with.

Part Third.

PERISCOPE.

REPORT ON PHYSIOLOGY.

BY W. GILCHRIST, M. D., TORQUAY.

THE BLOOD AND METAMORPHOSIS OF MATTER.

ON FIBRIN AND THE CAUSES OF ITS COAGULATION. BY A. SCHMIDT.

STARTING from the idea that the cell elements, and especially the blood corpuscles, might play some part in the coagulation of fibrin, Schmidt examined the effect of the addition of defibrinated blood to various fluids which coagulate more slowly and imperfectly than blood itself. He found that chyle from the ductus thoracicus of a horse, to which was added one-third of its volume of defibrinated blood, coagulated perfectly in from two to three minutes, whilst left to itself the same chyle did not coagulate in less than twenty-five minutes. This experiment was confirmed with the chyle of the dog. Serum alone hastened the coagulation of chyle, but not in the same degree as when the corpuscles were present.

Having found that oxygen had no influence on the coagulation of chyle, but that the addition of water charged with carbonic acid retarded coagulation to the extent of two and a half hours, and even then the coagulation was imperfect, he likewise observed, in a comparative experiment, the retarding influence of carbonic acid on the coagulation of blood to the extent of fifteen minutes, and he believes the explanation of the fact that blood coagulates more slowly in tall, narrow, than in flat vessels, to consist in the more tardy escape of carbonic acid in the one case than in the other. The coagulation of chyle is in a higher degree than blood retarded by the influence of cold and carbonic acid. The author found also that fluids which, in themselves, do not form a coagulum, do so when defibrinated blood is added. He examined more than eighty kinds of serous transudations with such as the general result.

It is well known that the blood of the horse coagulates more slowly than blood of other animals. This is not due, in Schmidt's opinion, to any peculiarity of the fibrin, but to a lesser energy in the cause of coagulation. The amount of defibrinated blood added to a fibrin-holding fluid is of influence as regards the time in which coagulation takes place, and the consistence of the coagulum. The addition of much blood produces coagulation in isolated flocculi. The amount of blood to be added, to cause a good coagulation, depends on the consistency of the fluid under examination. By a varying quantitative relation of the coagulating cause (which the author terms a fibrino-plastic substance), and the fibrin matter (fibrino-genetic substance), the resulting coagulum may be made to differ in physical character.

In regard to the nature of the fibrino-plastic substance (the cause of coagulation), Schmidt believes that it is not of a gaseous nature, nor is it a solid body suspended in the blood, because serum filtered through an animal membrane still retains its coagulating property. The coagulating substance is a fluid, and may exist, independent of the blood corpuscles. He believes, however, that this coagulating fluid, this fibrino-plastic substance is produced in the cell elements, and given over to the fluid part of the blood. The facts supporting this idea are: that a drop of defibrinated blood acts more strongly as a coagulating agent than a drop of serum to the extent of five to twenty times. Coagulation takes place also more speedily and more generally when the drop of blood is intimately blended with the coagulable fluid than when it is allowed to sink *en masse* to the bottom of the glass. In the latter case

coagulation occurs around the blood mass. It might be said, in objection, that the cells merely form crystallization points of aggregation for the coagulum, but other finely divided bodies (silica, charcoal, etc.) did not compensate for the blood cells.

This coagulating matter in the blood Schmidt traces to hæmatin, at least the blood crystals or their solution very quickly produce coagulation. In accordance with Bruecke's experiments, Schmidt thinks it probable that the fibrino-plastic substance is gradually destroyed by the action of the walls of the living vessels, and that the controlling influence of those walls depends on this destructive influence. An experiment is mentioned, which would seem to show that this fibrino-plastic substance may be extracted from the walls of the bloodvessels. Schmidt does not look on fibrin as a pre-existing element of coagulable fluids, but he recognises a fibrino-genetic substance, which is decomposed into two bodies by the action of the fibrino-plastic substance; one of these is fibrin, the other albumen remaining in solution.

At the conclusion of his essay Schmidt raises a question which leads to the old view, that the coagulation of fibrin may, to a certain degree, be regarded as an attempt at organization (*organisations-versuch*). Since he found that, under the influence of cell elements, organic substances had, in all the nutritive fluids, a tendency to assume solid form (as coagulated fibrin), so he supposed that the formation of tissue substance might depend on the influence of the tissue cells (*connective tissue cells?*). With this question before him, Schmidt found that the fresh washed out substance of the cornea possessed fibrino-plastic properties.—*Archiv für Anat. u. Physiol.*, 1861, also *Hende u. Meissner's Bericht für 1861*.

ON BLOOD CRYSTALS (HÆMATO-CRYSTALLIN). BY A. BOETTCHER.
(Dorpat, 1862.)

The author accidentally made the observation, that blood diluted with water, tied up in the heart of a dog, which had died during the narcotism of chloroform, after it had been exposed twenty-four hours to a temperature below the freezing point, contained a number of beautiful prismatic crystals. Boettcher instituted experiments to ascertain the influence of the various conditions affecting blood crystallization.

He found that, as already known, the principal condition for the crystallization of blood is the destruction of the blood cells. By merely adding water to the blood, destruction of the cells is attained, but only slowly and imperfectly. Chloroform is, as Sanson discovered, a very powerful destroyer of blood cells. The blood of chloroformed dogs, into the veins of which water was injected, was found immediately after death to be crystallizable in the very highest degree. The rest of the author's observations relate to the chemical composition and properties of hæmato-crystallin.—*Hende u. Meissner's Bericht*.

Note.—Hæmato-crystallin was first observed by Reichert, and has since been examined closely by Funke and Lehmann. It is to be distinguished chemically from Lehmann's Hæmatin, Teichmann's Hæmin, and Virchow's Hæmatoidin. It is the crystalline form of hæmato-globulin, from which it scarcely differs in chemical composition (Lehmann).—W. G.

ON THE IDENTITY OF HÆMATOIDIN AND BILIFULVIN. BY M. JAFFE.

The author having obtained a quantity of hæmatoidin from the seat of an old blood effusion in the brain, re-crystallized it, purified it from fat with ether, and then dissolved in carb. of soda. Under the microscope, with nitric acid, the play of colours characteristic of bile was plainly seen.—*Virchow's Archiv*, *xxiii.* p. 192.

ON THE FUNCTION OF THE LIVER. BY E. PH KÜTHE.

(*Studien des physiologischen Instituts zu Amsterdam, von Heynsius, 1861.*)

In regard to the question of the relation of the arterial blood of the liver to the secretion of bile, the author made some experiments,—amongst

others, ligature of the vena porta. In this experiment he was unfortunate, as all the animals speedily died in a few hours. Oré, who tried this experiment, succeeded by effecting the obliteration gradually, and found that the secretion of bile continued. Moos, who also succeeded in the experiment, found that obliteration of the vena porta produced diminution of bile. Kütke does not regard the gradual obliteration of the vena porta (as in Oré's experiments, or in pathological cases) as satisfactory, because blood may reach the liver in other ways, as by Sappey's accessory portal vein. Nor are the experiments by Moos decisive, because they did not take into consideration the biliary veins described by Bernard, which connect the hepatic, arterial, and portal systems. Ligature of the hepatic artery was formerly carried out by Kottmeier, and cessation of bile secretion was observed to follow. Kütke tied the celiac artery in a rabbit, which died thirty-two hours afterwards. The effect was cessation of the biliary secretion, and of the formation of glycogene and sugar. But Kütke does not infer that the arterial blood serves directly for the formation of bile, but rather to maintain the functional activity of the cells of the organ. Some experiments of a rather unsatisfactory character are adduced by the author to prove that the glycogene in the liver is obtained from glycine.—*Henle u. Meissner's Bericht.*

LIGATURE OF THE VENA PORTA AND PERSISTENCE OF THE BILIARY SECRETION.

BY E. A. CHASSAGNE.

(*Thesis, Strasbourg, 1860.*)

The author contends that the material for the formation of bile is furnished by the hepatic artery, not by the vena porta. He adduces cases (observed by Abernethy, Wilson, Lawrence, Broc), in which the secretion of bile was normal, although the portal vein did not supply the liver, but went directly to the vena cava, also, cases of obliteration of the portal vein in men without disturbance of the biliary secretion. He then refers to Oré's experiments (mentioned above), of which he was a witness, and also communicates four experiments by Bernard on dogs, in which the vena porta was ligatured without disturbance of the biliary functions.

ON THE RELATION OF THE CIRCULATION IN THE LIVER TO THE FORMATION OF BILE. BY M. SCHIFF.

In order to prevent the circulation of arterial blood in the liver, Schiff found that in dogs and cats it was necessary to ligature all the branches of the celiac axis, also the inferior diaphragmatic artery. After occlusion of these vessels, the secretion of bile still continues and in quantity. In several cats, Schiff tied the portal vein previous to its entering the liver. The animals did not live beyond one hour and a half, and died quietly. Not a drop of bile was found in the gall-bladder, which had been previously emptied. The abdominal viscera, and especially the spleen, were congested. The experiment was repeated on rabbits with a similar result. As *exper. crucis*, the following is interesting. The operation of exposing the vessels was performed on a cat, but the ligature was not tightened. The animal behaved as a healthy cat ought, bile dropping freely from an artificial opening in the gall-bladder. After one and a half hour, the ligature was tightened, and twelve minutes after the animal lay on the floor as if stunned. Death occurred in fifty-five minutes. Not a drop of bile flowed after tightening of the ligature.

The second part of Schiff's researches refer to the consequences of *gradual* obliteration of the portal vein, as it has been observed in man in pathological cases, and in Oré's experiments, to have been closed without disturbance of the biliary secretion. Schiff does not doubt the correctness of Oré's experiments, but has repeated them with the view of ascertaining whether the obliterated portal circulation was not maintained in some other way. In dogs and cats Schiff continued for nearly six days gradually to tighten a ligature of the portal vein. After the final tightening, the animals died. On post-mortem examination, it was found that three groups of dilated veins communicated with the portal vein above the point of ligature, *i.e.*, with the portion con-

nected with the liver. (1.) Small veins coming off from the veins supplying the gall-ducts and the ligaments of the liver, and in dogs these were in connexion with the veins of the stomach. (2.) A part of the veins of the gall-bladder and its ducts. (3.) A vein arising from the venous trunk formed by the crural and epigastric veins, and which receives branches from the floor of the urinary bladder, and, higher up, some from the sub-cutaneous abdominal veins, and from the peritoneum running on the inner surface of the linea alba, empties itself into the portal vein. Schiff terms this important, though in the normal state very inconsiderable vein, the *vena parumbilicalis*. Bertrandi has seen in the cat communications with the splenic veins. Burrows has described them in a human fetus, and Sappey found these communications dilated in cases of cirrhosis of the liver, and viewed them as an outlet for portal blood in disturbance of the portal circulation within the liver. Schiff regards them as of importance in the obliteration of the portal trunk, by giving admission of blood to the liver.

Schiff, therefore, does not see in the results of Oré's experiments, nor in pathological cases, any obstacle to the view that the portal vein furnishes material for the biliary secretion. In cases of congenital abnormal distribution of the portal vein, Schiff supposes that there is some compensation made by other veins, and he thinks it probable that what Kiernan, in Abernethy's case, described as a "navel vein," was the dilated *vena parumbilicalis*. Schiff does not, however, attach any chemical importance to the blood of the portal vein, since it has been seen that in pathological cases, as well as in experiments, the blood of the general venous circulation will suffice. He does not even consider the arterial blood as unsuitable, only it is supplied by the hepatic artery in too sparing a quantity; but, if the artery were dilated, it might compensate for obliteration of the portal vessel. It is rather, however, the province in which the blood must travel which forms the moment of chief importance, and it is in that of the portal veins that the bile is secreted. Schiff tried to prove directly that arterial blood brought into the circuit of the portal vein would maintain the secretion of bile. In three cats, he introduced the current of blood from the renal artery into the portal vein. In one of these experiments, in which the arterial blood circulated for a quarter of an hour without coagulation, Schiff believes that seventeen centigrammes of clear bile found in the gall-bladder, which had been previously emptied, were secreted during the circulation of arterial blood.—*Heule u. Meissner's Bericht*.

ON THE SOURCE OF LIVER SUGAR. BY A. HEYNSIUS.

(*Studien des physiologischen Instituts zu Amsterdam*.)

The author made a quantitative analysis of the sugar in the liver of animals with biliary fistula, and found the amount very small. He believes that sugar is derived from glycine and taurine. In two dogs which were fed, after fasting, the one on glycine, the other on taurine, Heynsius found more sugar than in the normal state.—*Heule und Meissner's Bericht*.

ON THE FORMATION OF SUGAR FROM GLYCERINE IN THE ANIMAL BODY.

BY J. VAN DEEN.

(*Archiv für die Holländischen Beiträge*, iii. pp. 25, 61.)

Van Deen adduces experiments to prove that glycogene is formed from glycerine in the animal body, and that thus the effect on nutrition which English physicians have remarked is explained. But his chemical facts have had much doubt thrown upon them by the researches of Kirchmer (under Meissner's direction), and also of Huppert. The subject is worthy of investigation on therapeutical grounds.—*Heule u. Meissner's Bericht*.

ON THE EXCRETION OF SUGAR AND UREA UNDER THE USE OF BENZOIC ACID IN TWO CASES OF DIABETES MELLITUS.

(*Studien des physiologischen Instituts zu Amsterdam*, p. 113.)

In two diabetic patients, Stockvis observed that in this disease the benzoic acid administered associates itself in the liver with glycine, and appears in the

urine as hippuric acid. In these two patients the sugar in the urine during the use of benzoic acid was considerably less than previously and afterwards. A diminution of urea was also noted, as long as hippuric acid was excreted, and the increase of urea, when the benzoic acid was stopped, was remarkably apparent. In a third case, in which benzoic acid was given, no hippuric acid was found in the urine, nor was there a diminution of the sugar and urea. The author supposes that benzoic acid causes an increase of oxidation in the economy, so that more sugar is burnt.—*Henle u. Meissner's Bericht.*

ON CUTANEOUS TRANSPIRATION IN BATHS. BY L. LEHMANN.

ON THE EFFECT OF WARM AND COLD BATHS ON HEALTHY MEN.

BY A. KIREJEFF.

Lehmann attempted to decide the question of water resorption by experiments on three boys. The boys remained for fifteen minutes in water of 25° to 26° Reaumur: the author then sought to determine whether a loss of the bath water had occurred. In many cases, certainly, a loss occurred such as could not be accounted for by evaporation or mechanical removal. The loss sometimes amounted to twenty-eight grammes. The author also examined the weight of the bathers, but could find no such difference as to support the idea of a resorption of water, and the known fact of an increase of the urinary secretion the author does not explain by skin absorption, but is rather inclined to regard it as caused by excitation of the nerves. The deficiency found in the water of the bath the author believes to arise from unavoidable errors in the measurement.

Kirejeff made observations on two soldiers, who took baths at 34° R., and remained in them for twenty to forty-five minutes, during which time the weight of the body either increased or remained stationary. In one individual, who had always a hard dry skin, this increase in weight was more significant than in the other whose skin was moist. The author does not regard this increase of weight as depending on true resorption, but rather, as Kletzensky showed, on swelling up of the epidermis. All the constituents of the urine were excreted in increased quantity after the warm bath, excepting only the phosphates, which were sometimes passed in increased, sometimes in diminished quantity. This increase of the urinary secretions is due, in the author's opinion, to an increased matter metamorphosis, effected through the nervous system, and it was more apparent in the weaker and more sensitive of the two soldiers experimented on. During the cold bath (18° to 24° R.), the weight of the body was unchanged. The solids of the urine were sometimes increased, at other times diminished in the same individual.—*Archiv für pathol. Anatomie und Physiologie*, bd. xxii.

Part Fourth.

MEDICAL NEWS.

MEDICO-CHIRURGICAL SOCIETY OF EDINBURGH.

SESSION XLII.—MEETING XI.

15th July 1863.—JAMES SPENCE, Esq., *President*, in the Chair.

I. CASE OF SECONDARY AMPUTATION OF THE THIGH.

Dr J. D. Gillespie stated, that by the kindness of *Dr Brotherton* of Alloa, he was able to show the stump from a case in which secondary amputation had been performed. The patient, a man seventy years of age, had had his thigh amputated four months ago, on account of a large and obstinate ulcer of the

leg. Three months and a half after the operation the wound was healed, with the exception of two small openings, into which a quill would hardly pass. Dr Brotherton was suddenly summoned to see the patient, on account of hæmorrhage from the stump, and found on his arrival that he had lost several pounds of blood; the bleeding had, in the meantime, been restrained by the tight application of a handkerchief. When Dr Brotherton saw the patient he removed the handkerchief, and immediately there was a jet of blood, which was restrained by plugging and the application of a ligature. Dr Gillespie was called in, and finding the stump cold, and having a gangrenous appearance, he performed amputation higher up. On examining the stump there seemed to have been ulceration affecting the end of the femoral artery, and thus leading to the hæmorrhage. The end of the femur was thickened by the formation of new bone.

II. ON A NEW CRANIOMETER.

Dr John Struthers showed a craniometer which he had designed some time ago, and had found useful in taking exact measurements of the cranium. It is essentially a glass box, the panes of which are accurately ruled, and fitted into a brass frame. The side panes are nine inches square; the end, top, and bottom panes seven inches by nine inches. The bottom pane is of plate glass, as it has weight to support. The top pane lifts out. The lines on the glass panes are very carefully made, with a diamond, at distances of an inch, both ways, so as to divide each pane into squares one inch in size. The middle division, both ways, of each pane is halved by a median line, which is farther marked at each quarter of an inch.

The skull is raised to the proper level by pieces of wood put under the occiput, and is so placed that the longitudinal middle line of the skull corresponds to the middle line of the end, top, and bottom panes. It may be further placed so that the middle line of the side panes intersects the meatus auditorius, or passes through the more exact middle of the antero-posterior diameter, when this has been ascertained by a glance. By now looking through the different panes, and getting the eye on the ends of the corresponding line on the opposite pane, accurate measurements may be easily and rapidly read off. The importance of having a corresponding line on the opposite side for the eye to catch becomes evident. In this way, without shifting the skull, we may take measurements of the sides, front, back, top, and interior of the base of the skull. For the exterior of the base, the skull may be turned up and steadied, or may lie on its side. The callipers are still useful for the more simple diameter measurements, and the tape is necessary for circumferential measurements; but the straight measurements of length, height, and breadth are more accurately and more rapidly obtained by this instrument than by callipers.

Dr S. had his craniometer first made to open at one side, but found it most convenient to have the top pane the loose one; a farther advantage attending which is, that the craniometer may be turned round and placed over a bust, or over the living head, resting by its bottom pane on the crown of the head. The principle of the glass craniometer may be varied in many ways, as by varying the lines, and may be applied to the measurement of other objects. The instrument had been carefully made to Dr S.'s instructions by Mr Peter Stevenson, philosophical instrument maker, Edinburgh. Care is necessary in the construction of the brass frame, and in the ruling of the panes, in order to secure perfect accuracy.

Dr Struthers remarked, that the measurement of crania may be farther facilitated by lines drawn on certain parts of the cranium itself. He illustrated the mode of using his glass craniometer by a skull, which he remarked on as a fine specimen of the long form of skull, from a young man, associated as usual with obliteration of the sagittal suture. Dr S. hoped to have another opportunity of bringing before the Society the results of observations which he had been engaged for some time in making on the different forms presented by the cranium and face, and on their probable causes.

III. OVARIOTOMY.

Dr Thomas Keith read a paper on ovariectomy, with cases, which will be found at page 299 of this number of the Journal.

Mr Spence had listened with much pleasure to *Dr Keith's* paper. He quite agreed with *Dr Keith's* conclusion, that we should wait till life was in danger; then the operation was not only warrantable, but its performance was imperative. It was, however, scarcely fair to say that ovariectomy had been unfairly treated by surgeons. At first there was not merely the danger of the operation to be considered, but the diagnosis was very uncertain, and the results had been very unsatisfactory. Now-a-days, however, the operation was on a very different footing, and must be considered perfectly justifiable, provided it was not performed too early.

Professor Simpson, after congratulating *Dr Keith* upon his highly-deserved success, said that he could scarcely agree with *Mr Spence* that ovariectomy had not been unfairly treated by surgeons. No doubt the diagnosis had been much improved of late years; but surgeons were not justified in having opposed ovariectomy as they had so bitterly and constantly done, on the ground that the diagnosis of ovarian disease was not perfect; for this consideration did not deter them from operating in other cases, where their diagnosis was very imperfect also. *Dr Simpson* had heard it stated in this Society that ovarian disease was "rather unsightly than dangerous," and that therefore it was unjustifiable to operate; but this was a grave mistake. When left to itself, or treated with simple tapping, multilocular disease of the ovary was a very fatal malady. A few cases might do well without the radical operation, but in his own practice he only recollected two in which death had not followed; and death from ovarian disease was of a peculiarly distressing character; the patient was quite helpless, was sinking for a long time, and often suffered much pain. *Mr Spence* and *Dr Keith* both said that it was unjustifiable to operate until there was some danger to life; but to this doctrine *Dr Simpson* must demur. If we waited till there was danger, we should, in many cases, wait too long, till the operation had no chance of success. Surgeons were not in the habit of acting upon this principle; they did not do so in the case of a stone in the bladder. Suppose a urinary calculus was discovered by mere accident, the surgeon recommended immediate operation, in order to avoid the suffering and increased danger which were likely to follow. Formerly it was laid down that ovariectomy should only be performed in cases where there was reason to believe there were no adhesions; but now this was all changed. The first convincing proof that adhesions were no obstacle to the success of the operation was afforded by a case of *Mr Clay's*, where a portion of the abdominal parietes was cut away, but without any bad symptom. We now knew from what we found in the lower animals, and from what we saw in cases of hernia, that the danger of interfering with the peritoneum was not nearly so great as had been supposed. Indeed the operation was now quite as successful as many of the formidable operations of surgery. He had seen in the journals that some patients with ovarian disease had been removed to the country in order to be operated on, on the ground that such an operation should not be performed in an hospital. But, if this principle were true in regard to ovariectomy, the same principle should hold good in regard to all surgical operations, and *Spencer Wells* and *Baker Brown* had not acted upon this principle; yet the success they had met with was well known. It was a great point to prepare the patient for a week or two before the operation, by bringing up the general health, and a great part of the late success which had attended ovariectomy was probably due to this cause. *Dr Simpson* concluded by observing that one of the most important questions to be solved was with regard to the treatment of the pedicle, and the mode of applying the "clamp." In a case of ovariectomy in which he had used the clamp, it was ten or twelve days before it separated.

Dr Moir quite agreed as to the fatality of ovarian tumours if left to themselves. Not unfrequently some of the cysts burst into the abdomen, and this sometimes gave rise to violent peritonitis.

Dr Matthews Duncan had listened with great gratification to *Dr Keith's* paper, and, on the whole, agreed with the views propounded in it. He could not agree with the opinion that ovariectomy had been unfairly treated by surgeons; for, as soon as success had attended the operation, its position had been established. The success of the operation seemed quite to have gained over the profession in Edinburgh. For his own part, the cases recorded by *Dr Keith* had had much more effect upon him—performed, it might be said, at his own door—than the narrative of operations at a distance. *Dr Duncan* could scarcely think that attention to minutiae could have great effect in determining the good or bad results of the operation—when we heard of bits of the abdominal parietes being removed with impunity. No doubt, everything should be attended to, but it scarcely seemed to him that any little changes in the mode of application of the clamp could make much difference.

Dr Thomson (*Dalkeith*) having witnessed two of *Dr Keith's* operations, would allude to the importance of the treatment after the operation. One great feature in it was, that almost nothing was given—only ice for some time, very rarely a little brandy. In this way sickness, which was such an unfavourable symptom, was generally avoided. He had at first been afraid that the patients would die of starvation, but it was astonishing how rapidly they got well. *Dr Thomson* also referred to the case of a lady whom he had seen last night, who had been tapped eight or nine months ago, and remained quite well; whether or not she would continue so was another question.

Dr Keiller remarked that the case of tapping referred to by *Dr Thomson* ought not, perhaps, to be pronounced as an undoubted cure; for although eight months had elapsed since the tapping without any appearance of re-accumulation, it by no means followed that such would not by and by take place. He (*Dr K.*) had on several occasions been led to conclude that cures had been effected after a single tapping, but on waiting much longer than eight months, the ovarian cysts were found to become gradually re-filled. It must be remembered that, especially in single cysts, or large and upper cysts of multilocular cases, the reappearance of the tumour was often exceedingly slow at first, from the diminution of the cavity and contracted condition of the thickened cystic walls. When, however, a certain degree of distention had occurred, the sac was usually more rapidly dilated, its secreting surface becoming more extensive, and the secretion, consequently, more readily poured out. *Dr Keiller* had tapped two cases about eighteen months ago, which illustrated the points he had just referred to. Both were, like *Dr Thomson's* case, first tapplings, and in both instances it had been proposed, and, indeed, agreed upon, to at once proceed to the more radical treatment of ovariectomy, without having recourse to even one tapping. He (*Dr K.*), along with *Dr Simpson*, had carefully diagnosed these cases, and, at the time of their tapping, had no doubt of their ovarian nature; but from the tumour in both of those instances so entirely disappearing after the removal of their fluid contents by tapping, and the long time that had elapsed without the return of the dropsy or abdominal enlargement, he (*Dr K.*) was inclined at one time to conclude that either cures had been achieved, or some error of diagnosis had been committed. In one of these cases there was still no appearance of any re-accumulation, but it did not follow that such would not even yet occur. In the other instance there was now some evidence of the ovarian cyst again, although slowly, refilling. *Dr K.* had lately examined this patient, who, believing herself to be cured, had recently married, and found the long dormant cyst partially filled, and it might be expected that it would ere long become more rapidly filled.

Dr K. had now repeatedly witnessed and assisted in the performance of ovariectomy, and from what he knew of the history and the results of many ovarian tumours, could not but approve of well-timed extirpation in properly diagnosed and carefully selected cases. He had been present at several of *Dr Thomas Keith's* operation, and had greatly admired the able manner in which the difficulties were met and overcome; and there could be no doubt that in *Dr Keith's* hands the serious undertaking would prove yet more successful. *Dr*

Keith's cases and paper had accomplished much to be thankful for on the present occasion, the justifiable nature of ovariectomy having been in no small measure now acknowledged by the Society.

Dr Moir alluded to the occasional fatal results of first tapplings. The operation was often thought simple, but in reality it was not so.

Professor Simpson had long ago stated that tapping an ovarian cyst was not so simple an operation as was generally supposed, and was by no means free from danger. First tapplings were especially dangerous. Out of 130 cases of first tapplings performed by Lee, Southam, Kivisch, and others, 30 had died before a month had elapsed. The mortality from first tapping might, no doubt, when more data were obtained, turn out to be less than this, still the operation was a very fatal one, and no wonder; for very often we could not prevent a portion of the diseased and acid contents of the cyst from escaping into the abdomen, with the risk of setting up general peritonitis; and there was also the danger of fatal inflammation of the cyst itself.

Dr Matthews Duncan could not agree with *Dr Simpson* as to the danger of tapping. He had never seen a patient die, or suffer much after tapping; and this he knew had been the experience of many.

Dr Handyside many years ago had performed ovariectomy, and had suffered considerable obloquy, and been the subject of distasteful remarks at that time. He was, however, gratified to find that a change in the feeling of the profession had taken place, for he had all along been satisfied that, if ovariectomy had fair play, it would come to be looked upon as a perfectly justifiable operation. In the case in which he had operated in 1846, he had found considerable adhesions at one part of the tumour, but these had not been the cause of any practical difficulty. The patient lived till the seventieth day after the operation,—the only case, probably, which had ever lived so long, and died in consequence of it. The patient had been removed from one part of the town to another, and had in consequence taken cold. *Dr Handyside* had operated unsuccessfully in a second case: the bad result he was inclined to ascribe to chloroform, for the patient never rallied from the operation, although the case had seemed a very favourable one. He was quite prepared, under favourable circumstances, to perform the operation again. *Dr Handyside* could not agree with *Dr Duncan* with regard to the unimportance of attention to minutiae in ovariectomy. In severe operations, much depended upon what were apparently most trifling precautions, and this was nowhere more seen than where internal cavities were concerned.

PROCEEDINGS OF THE EDINBURGH OBSTETRICAL SOCIETY.

SESSION XXII.—MEETING VIII.

May 13, 1863.—*Dr Pattison*, *President*, in the Chair.

I. THE MEDICAL ASPECTS OF THE "CHESTER CASE."

Dr Keiller read a communication on the above subject.

II. MALFORMATION OF THE HANDS LIKELY TO LEAD TO MISTAKE IN DIAGNOSIS OF PRESENTATION.

The *Secretary* showed the casts of the hands of a girl seven years old, taken by *Dr Grierson*, of Thornhill. The thumbs were on a line with the fingers, and the hypothenar eminence was obliterated; so that the whole organ had great resemblance to a foot, and might have given rise to great difficulty of diagnosis in a case of preternatural labour.

III. DIPHTHERITIC AFFECTION OF THE MUCOUS MEMBRANE OF THE UTERUS AFTER DELIVERY.

Dr Alex. R. Simpson showed a preparation of a uterus, which had been sent him by his friend *Dr Yellowlees*, senior assistant in the Morningside Asylum. The patient from whom the preparation had been obtained had been sent into

the Asylum as a case of puerperal insanity; but her disease showed itself to be a form of puerperal fever, under which she succumbed a day or two after her admission. At the post-mortem examination, the organs had for the most part been found healthy, but the uterus presented on its inner surface a number of diphtheritic patches, which were very marked at the site of the placenta, especially at points where there were some small placental masses remaining attached to the uterus. Different local complications, as they were all aware, were liable to occur in different epidemics of puerperal fever, or even at different periods of the same epidemic. In Berlin, five years ago, he (Dr A. R. S.) had had an opportunity of witnessing the post-mortem examination of a great many patients who died of puerperal fever during a lengthened epidemic, and of noticing how a series of them presented morbid appearances which were mainly confined to the peritonæum; and then for a time the cases would nearly all show no peritonitis, but affections of the vascular system,—perhaps with secondary deposits in the lungs or other organs; whilst a third set would present chiefly morbid changes in the lymphatics and cellular tissue beside the uterus. In other rarer cases, again, no morbid change was discovered until the uterus was cut into, when, as in the case before them, a series of dingy grey sloughy patches were seen on the inner surface of the organ; although this form of puerperal affection was sometimes found associated with some of the other local complications. In cases where the interior of the uterus had become the seat of such diphtheritic deposits, any lacerations of the vaginal canal that might have occurred during labour were usually found to present the same gangrenous appearance.

SESSION XXII.—MEETING IX.

June 10, 1863.—Dr PATTISON, *President*, in the Chair.

I. NEW CAUSE OF UNAVOIDABLE HÆMORRHAGE.

The *Secretary* read the following communication by Dr Bryce of Dalkeith:—“On the 4th of June 1858, M. D. was delivered of her first child—a healthy, well-developed boy—at the full term of utero-gestation, but did not again become pregnant till the first week of January 1862. On the 11th of June following—that is, about the fifth month and a half—abortion took place; and, after delivery, it was found that the predisposing cause of the accident had been fatty degeneration of the placenta. Her husband was from home from the above date till the 2d of August of the same year, on which date he returned for two or three days, when she again became pregnant. On both of these two last occasions, she states that she never felt so well as during her first pregnancy. At six o'clock P.M. on the 11th of last January—almost to a day the time of her former premature labour—I was again summoned to see her, when she stated that she first began to complain at four o'clock the same morning. On examination, I found the os considerably dilated, and a large bag of thick membranes presenting, and through them I could with difficulty trace the outlines of a foot. The pains had almost entirely ceased for an hour or two; and as there was no hæmorrhage (and had been none), I thought it advisable to delay interference for a short time. After allowing what I considered to be sufficient time, without any sign of improvement, I ruptured the membranes, and in a few minutes the uterus again took on action, the pains recurred regularly, and with every uterine contraction hæmorrhage, which entirely ceased during the intervals. A careful examination convincing me that no portion of the placenta was attached to the cervix, and being unwilling to interfere so long as the hæmorrhage, though considerable, was not alarming, and so long as I was in total ignorance of the cause of the bleeding, I tried what effect the plug might have in arresting the flow of blood. The pains soon increasing in strength, the descent of the fœtus partially expelled the plug, which I then removed altogether. I examined again, and could now reach the pelvis, where I found the cord, which I was now able to trace, passing downwards from its umbilical origin, over the perineum, and up the back to its

placental attachment, and rendered so tense by the descent of the foetus, that I concluded it was preternaturally short. The child was thus ascertained to be sitting astride the cord.

"Seeing now that the forcible separation of the placenta produced by the traction on the cord, in the descent of the foetus during each pain, was the cause of this unavoidable hæmorrhage, I proceeded during an interval to rectify this abnormal position of the child; and this I with some difficulty succeeded in doing, by flexing the right thigh on the abdomen, and passing the cord over it. The hæmorrhage was thus completely arrested, and, with a few more pains, the foetus was expelled at seven P.M., followed, after the lapse of ten minutes, by a fatty battledore placenta. An over-active attendant had the placenta destroyed before I could get the cord accurately measured; but, from a rough guess, I think the total length of the cord would be about eight inches.

"In consequence of special circumstances, such as seldom come under our notice, and one of which has been already mentioned, the time of impregnation can in both cases be fixed almost to a day: in the first case, to the 2d or 3d of January 1862, and, in the second case, to the 2d or 3d of August; and in both instances the abortion took place almost exactly at the same period of utero-gestation, or about the eighth or ninth day of the sixth month."

Dr Keiller said that it not unfrequently happened that the cord prolapsed before the presenting part when the placenta was of the battledore variety. On the previous day he had had a case in the Maternity Hospital, where the cord got below the shoulder and apparently impeded the labour. The head had made no advance for some time, when he (*Dr K.*) ruptured the membranes and turned. The placenta was of the battledore order.

II. ON SOME CONGENITAL MALFORMATIONS OF THE INTESTINAL CANAL.

Mr Wm. Turner read a paper on the above subject, published in this Journal for August last, p. 110.

III. NOTES OF CASE OF INFANTILE INTESTINAL OBSTRUCTION.

Dr Keiller supplied the following notes of the case described by *Mr Turner* :—

Joanna L., æt 28, unmarried, was delivered in the Maternity Hospital on the 26th April of a male child at the end of the seventh month (the date of conception, as stated by the mother, being the 24th September 1862, from one act). She enjoyed better health than usual during her pregnancy, and had active movements of the child during the latter months. The labour was natural, and of the ordinary duration of a first case. The child seemed strong at birth, cried feebly, and was then considered to be "all right," until about ten hours after birth, when it became sick, and vomited slightly some greenish fluid. It had previously got several spoonfuls of sugar and water. It passed water on the following day, but nothing from the bowels. The vomiting continued from time to time,—the vomited matters being at first greenish, then greenish fluid mixed with white curdy matter, but which afterwards became yellowish; this colour continuing until its death, which took place on the twelfth day (on the morning of the 7th May). Repeated attempts were made to induce movement of the bowels, by passing catheters and injections, but, except a small quantity of yellowish mucus, nothing was passed. With the view of overcoming the obstruction by operative procedure, *Dr Keiller* made a careful exploration along with *Dr Dunsmure*, but found no evidence of a cul de sac or terminal pouch into which to cut, the examining finger passing (when somewhat forcibly pressed upwards) towards the promontory of the sacrum without meeting any distinct evidence of the usual form of intestinal deficiency. No incision or other surgical measure was therefore had recourse to, more especially as the effort then made to reach the supposed point of obstruction might of itself prove sufficient. Air was at times expelled from the stomach, but none came from the bowels. It refused to swallow from the day before it died. The quantity of matter vomited was considerable; its clothes requiring to be changed several times a-day. The abdomen swelled much about two

days before its death. The examination of the intestinal malformation after death revealed what could not be detected during life, the very singular condition of the bowels (so ably described by Mr Turner, to whom the Society was on the present and on previous occasions greatly indebted) readily accounting for the difficulty of forming a proper diagnosis, as well as the uselessness of the measures adopted to afford relief. Dr Keiller had not seen any case resembling the present, but had repeatedly witnessed partial intestinal contraction with and without obstruction, and had on several occasions communicated to the Society the results of the operative treatment adopted. He (Dr K.) recollected of a case where the meconium came away by the urethra, and where the rectum bulged downward on the right side. He endeavoured to establish a communication between the anus and rectum, but did not succeed. After death it was found that the rectum terminated in the bladder.

Dr Pattison mentioned a case of obstruction of the bowels in an infant. The day after birth he (Dr P.) found, on examination, a piece of the membranes stretched across the perineum and fastened firmly to the skin. On removing this obstruction the bowels were opened without any farther interference. It was a head presentation.

Dr T. Balfour related the case of a child, two years old, who, on one occasion, suffered great pain in its abortive attempts to defæcate. On examination he (Dr B.) found a portion of egg-shell lying across the anus, and completely plugging it up.

IV. SPONTANEOUS INTRA-UTERINE AMPUTATION, AND RUDIMENTARY REPRODUCTION.

Dr T. Balfour exhibited a boy whose left arm had been amputated in utero, and on the stump of which rudimentary fingers had developed themselves.

Dr Keiller referred to cases of intra-uterine amputation, several of which he had seen greatly resembling the one now exhibited. He (Dr K.) would be glad to report them to the Society.

V. ENCYSTED TUMOUR OF THE MONS VENERIS.

Dr T. Balfour read a communication on the above subject. The patient, married, but no child, received a pinch on the mons veneris from another woman thirteen years ago, to which she attributes the origin of the tumour. It grew very slowly for ten years, but latterly increased rapidly in size. With regard to the cause, it is doubtful if the pinch above referred to had anything to do with it; it is more probable that it was owing to the obstruction of some of the sebaceous follicles which abound in this part. He (Dr B.) thought that encysted tumours were rare in this part of the body, owing to the fatty cushion over the pubis protecting the skin from injury. The contents of the cyst were almost entirely composed of epithelial scales and cholesterine plates.

THE MADRAS MEDICAL COLLEGE.

ADDRESS BY PROFESSOR SMITH.

AT the Annual Meeting for the distribution of Prizes to the Students of the Medical College of Madras, held on the 26th May last, in presence of H. E. the Governor, H. E. the Commander-in-Chief, the Principal Inspector-General of the Medical Department, the Hon. Mr Pelly, the Hon. Mr Arbuthnot, E. B. Powell, Esq., Director of Public Instruction, Col. McGoun, Col. Barrow, Drs McKenna and Shaw, Deputy-Inspectors-General of Hospitals, Surgeon-Major Gordon, H. M. 69th Foot, Deputy-Inspector-General Mayer, the Principal of the College, and Professors Blacklock, Montgomery, Chipperfield, Urquhart, Smith, and Paul, etc., the Principal of the College, Dr Mayer, read a report of the proceedings of the past year, after which His Excellency the Governor presented the Prizes and Certificates to the successful students. Dr Smith, one of the Professors, then delivered an Address on "Medicine: an important Element in the Civilisation of India," from which we extract the following passages:—

“Medicine, in its history, has been associated with man’s mental, moral, and physical nature; with his wants, his weakness, his wickedness, and his progress. Impinging alike upon his spiritual and physical nature, its development has been an accurate transcript of his whole history; it has equally shared his triumphs and partaken of his degradation. The universal recognition by man of an art of healing rests upon two simple but all powerful principles. The one, the catholicity of sickness, suffering, and death; the other, the truth enunciated by Holy Writ, that ‘no man ever yet hated his own flesh; but nourisheth and cherisheth it.’ In the rudest state, when man has only the pleasures of sense and the wants of appetite to gratify; when instinct guides him to the food necessary for his existence, a similar though less unerring instinct directs him to the employment of those simple agents within his reach which are fitted to relieve the bodily ailments from which he suffers; and this instinct he shares in common with some of the inferior animals. But the human mind, ever working and active, ever under the influence of the unseen, soon begins to associate disease and death with the anger and malignity of mysterious powers; and thus medicine, as an art, must have early passed into the hands of those who were supposed to have power with the world of spirits. The wily priest, claiming influence with the gods, and demanding implicit reverence and trust, became the physician of his brother man; the power once gained was held with an iron grasp, and the caste of the priest-physician became established. The knowledge and power thus secured were handed down in an unbroken line with jealous care, and gained at each remove a firmer hold of the minds and bodies of men.

“Medicine then appeared as an art known to the initiated alone; an art allied with magic, incantations, and astrology; dealing in charms, amulets, and talismans, it closely reflected the folly and superstition of the times. Many a dreary valley of degradation the ‘art of healing’ has had to pass through before it emerged into the light of heaven as a free, humane, and holy science.

“The history of medicine since the commencement of the Christian era affords an interesting field of study to the medical antiquarian. The superstitions of the early church bore their logical fruit; the practice of the healing art fell into the hands of anchorites and priests, and the tomb of the martyr and relic of the saint, took the place of the temple of Esculapius and the incantations of the augur. In this respect, medicine but shared the fate of higher and holier things. Nor is this to be wondered at, for medicine is a weapon too efficient, too near the human heart, too conversant with human wants and weaknesses, to have escaped the notice of those whose interest it was to wield it for their own purposes. The Christian priesthood took up what the heathen grasp had relinquished, and medicine began a second time a career of superstition and degradation. To the monastic establishments, however, we are indebted for the preservation of the works of the older authors on medicine, and to the monks we owe the first institution of hospitals.

“The eleventh century saw the close of the dark ages, and the partial rending of the cloud which had so closely enveloped the human mind for centuries. The medical schools of Montpelier, Bologna, Naples, and Messina, appeared in rapid succession; to be followed in the twelfth century by those of Oxford and Cambridge.

“In the thirteenth century, the medical schools of Valencia, Paris, Toulouse, Prague, and Vienna rose to fame. In the fifteenth, the invention of printing by Guttenberg marked the era of that mighty resurrection of mind which culminated in the reformation of the sixteenth century. Humanity, thus emancipated, felt for the first time its rights as well as its powers, and craved for freedom of mind as well as for liberty of body. Medicine shared in the benefits of that mighty struggle between light and darkness. Out of the turmoil she emerged ennobled and purified. Throwing aside the trammels of authority and severing her connexion with priestcraft, she has advanced more during the last 300 years than she had done for decades of centuries before. Nature began to be studied more than books; facts were sought for more than authority,

and the human mind, which had so long been walking in fetters, started on a new race in the full consciousness of its freedom and its power. No longer the ally of superstition, astrology, necromancy, and magic, medicine is conforming itself daily more and more to the progress of philosophical reasoning; walking daily more and more steadily and willingly in the footsteps of the inductive sciences; culling truth from every science, and giving facts in return to every science, it at once touches the dearest interests of human life and the noblest subjects of human philosophy.

“Great Britain has nobly borne her part in the great revival. Omitting all mention of modern celebrities, we can appeal to a Sydenham, a Cheselden, a Jenner, and a Hunter, as examples of those high intellects which so nobly ushered in the present thinking and practical age of medical research. No longer passively taking the impress of the various phases of the human mind in its states of pupillage and ignorance, medicine is now actively impressing that mind in turn, and nobly taking part in the immense intellectual activity which distinguishes the present century.

“If this be so, it cannot be presumptuous in us to claim for the science and art of medicine a high position among the civilizing agencies of the world. In corroboration of this claim, we can appeal to the students of literature, philosophy, science, and art; we can appeal to those noble institutions which, whether as schools, hospitals, asylums, or other medical charities, do honour to our native land; we can appeal to the poor, the outcast, the sick, the suffering of both sexes and of all ages, the blind, the deaf, and the dumb, who rise to call our art blessed. Law has claimed our willing help and has obtained it, and crime has been exposed to the light of day. The soldier and the sailor, both in peace and war, have acknowledged our humanity and our help. The public has to thank us for many a sanitary truth laid clearly before it; whilst by its contributions to every department of human knowledge, its stores of general information, and its independent tone of research, medicine has laid the thinking and working world under deep obligation. Medicine as an element of civilisation ranks with other agencies of general education. Its study educates as well as expands the mind; cultivates the memory and judgment; develops the powers of observation and reasoning; disarms prejudice and corrects misapprehension; removes error and substitutes truth; gives mental power and moral tone. It opens up the treasury of Western science and language, and introduces to special studies, as those of Botany, Natural History, and Chemistry, which are calculated to enlarge the mind and refine the ideas, whilst its practice affords a noble outlet for life,—labour. In fine, medicine touches more or less upon every object of human observation, upon every subject of human thought, and brings at the same time its professor into close contact with the practical utilities of life.

“But besides these general advantages which she possesses in common with other agencies of general education, medicine undoubtedly claims special advantages of her own, arising from the nature of the agency, and from the direct mode in which that agency acts upon the human heart. The very nature of medicine as the ‘art of healing’ demands that it be prosecuted in a kind, unselfish, and honourable spirit; and no medical teacher is doing his duty to his pupils who fails to present it in this light, or to inculcate upon them a love of truth and honesty, kindness and charity, consideration for the poor and afflicted, humanity to all. The studies themselves make the student familiar with the inner man; with its sorrows and sufferings; its distresses and its weaknesses; its cries for sympathy and help; and such studies ought to soften, and do soften, every true manly heart. They bring heart closer to heart in kindly sympathy, and thus prove to the inner consciousness, and by a vernacular common to the whole brotherhood of man, that ‘God hath made of one blood all nations of the earth.’ In the structure of the human frame, in the emotions of the human heart, in the activities of the human mind, the observant student can read *the essential unity of the human race*, and as he traces on the Hindoo body the smallest fibril of a nerve, by help of a text-book based on

the anatomy of a Briton; as he sees that the same hopes and fears animate equally the children of the west and of the east; and as he lays his own mind alongside that of the Anglo-Saxon stranger, and feels that their powers, if differing *in degree*, are at all events the same *in kind*, he may be led a step higher, and feel convinced in his heart that He who created the Briton created also the Hindoo, and that that God, proved to be ONE in operation, must be ONE in nature too.

Every enlightened and honourable medical man is the centre in India, as elsewhere, of a wide and daily-widening influence for good. If a native, what prejudices among his countrymen may he not uproot; what ignorances may he not dispel; what false ideas of western influence and action may he not remove; what direct advantages may he not confer; what deeds of mercy and of love may he not perform? His principles, too, will shine in striking contrast with those which guide the unscrupulous practitioners, whom he has been educated to supersede.

"An important advantage possessed by medicine, regarded as an element of civilisation, depends upon the traditional respect with which the art of the physician is regarded in India. To the practitioner and to the teacher of medicine, equally from patient and from pupil, is this respect freely and naturally rendered.

"May I add another element to be taken into consideration, namely, the peculiar aptitude exhibited by natives of India for medical study. Were their memory a little less acute, their judgment a little better balanced, no students in the world would outstrip the Bengalees of Calcutta, the Parsees of Bombay, or the Mohammedans of Hydrabad.

"That medicine is exerting its influence upon the people of this land, not only through the medium of European practitioners, but also of the pupils of our schools and colleges, is patent to all who candidly review the history of the last twenty years. In his speech at the Grant Medical College, a few days ago, Sir B. Frere said,—'In another way, the education afforded at that college had told, in a remarkable manner, on the native community. The true principles of sanitary science were now very generally diffused among educated natives; and sanitary reforms, which were utterly impossible, owing to ignorance and prejudice, a few years ago, were now believed perfectly feasible.' Even the stereotyped and almost immovable Mohammedan is bending to the influence, and is doing many things contrary to the customs of his people, and to the hereditary prejudices and bigotry of his race.

"Do not let me be misunderstood: I have no desire to raise *secondaries* to *primaries*, or to depress *primaries* to *secondaries*, as will be seen presently; nor do I mean to say that, with reference to medical education and influence, all has been plain sailing, or that the natives of this land, under the influence of medical or any other secular education, have at once seen and abandoned their national ideas and hereditary trammels. On the contrary, every college and school can tell its own tale of difficulties and discouragements; of earnest labour and puny fruit; of glad hopes and dispiriting realities. Amid the faithful few have been found too often the faithless many, and earnest workers have been forced to acknowledge, that *principle* is as necessary as *power*; that *man has a heart to be reformed as well as a head to be informed*.

"Withal there is much to cheer and to encourage. Honest labour, sound in policy, persevering in action, must sooner or later bear its sure fruit and reward. My own experience leads to the conclusion, that medical education, pursued in the right way and in the right spirit, in sufficient patience and with sufficient patronage, will take a higher and more important share than it has ever yet done in the civilisation of this land.

"A glance at even a small portion of the field of operation in India will place this view in a strong light.

"Inhabited by various races in every different stage of civilisation, India presents to the medical philosopher this striking feature, that it offers to his

contemplation, in actual existence, an epitome and historical retrospect of the earlier stages of development, through which, in the Western world, his science and his art have passed. Much of what we have said of the early history of medicine is applicable to India of the present day. In the primitive tribes of this land, medicine may be seen in its earliest stage, when instinct and the experience instinct slowly collects, alone guide the native to the employment of simple remedies, calculated to relieve pain and abate disease. Indeed, every phase of medicine may, with a little research, be traced: the mysterious, the supernatural, and the stages in which the astrologer and dealer in talismans, amulets, and charms, are the most prominent figures. In India may be seen deities powerful over certain diseases; specially holy and efficacious shrines; magic and exorcisms; the fear of the evil eye; all-powerful incantations; love potions; universal quackery and imposition. Sufficient materials truly for any philosophic treatise on the development of the science and art of healing. Nor is this all, for, along with the simple herbalist and the wily quack, we have also the sage oriental gnostic, possessing more or less of the characteristics of thought which marked his countrymen two thousand years ago. Nor are illustrations of the Saracenic stage of medicine wanting in India. Times are changed, but the inner spirit still exists, and there are thousands of minds in India which, could they be transferred to the court of the old caliphs of Bagdad, would find that a thousand years had neither extended their stores of information nor removed a single prejudice.

"Such specimens of ancient history are to be seen among the Mohammedans of cities like Hyderabad. There we find the educated physician, proud of his scanty knowledge of Arabic and Persian, too grand a man to be a surgeon or touch with his hand a pauper-patient. Full of grandiloquent phrases and learned medical terms, he has not one single clear idea on the subject of disease; he feels the pulse, but understands not its warnings; he examines at a distance the urinal, but comprehends not its indications. A theory is ever at hand to account for all things. A hereditary physician, he requires no diploma, he seeks for no hospital. A heaven-born genius, he requires no clinical experience. He reads books seldom; nature never. His mouth is full of Hippocrates, Galen, and Avicenna, but it is doubtful whether he has ever even read their works. These and other old authors are his courts of appeal against all innovations and progress. Their works are to him the acme and perfection of all possible science in medicine. With the sick poor he has no special sympathy; he gives the alms his faith requires, but to build a hospital or erect a dispensary are ideas which never crossed his brain. All surgical disease, of course, he hands over to the barber; surgery lies in a province entirely beneath that of the dignified practitioner in medicine. He dabbles in chemistry a little if he happens to have the means, and he prosecutes the old ever-beginning, never-ending search after the 'elixir vitæ' and the transmutation of metals.

"There are other practitioners of the healing art less dignified than the above-mentioned individual; with less learning, they assume greater familiarity with the work of the old authors; they possess elixirs of life, potent occult remedies, wonderful medicines from far-off lands; in short, they fully supply that craving which is inherent in the human mind for the mysterious and the secret,—a craving which, whether in ignorant Hyderabad or enlightened England, constitutes the rich patrimony and heritage of the knave and the charlatan.

"But as these learned and unlearned physicians do not practically supply all the wants of the poor and diseased, other classes of practitioners are to be found, each claiming to do something to relieve suffering humanity.

"Alas, for the human race in the hands of such pretenders to the healing art in India; fakeers with their holy sentences, religioli with their amulets and charms, herbalists and quacks of all shades and of all kinds and degrees of effrontery, fatten upon and torment the wretched people of the land. Chief among the torturers are the barbers. As in England in days gone by, the

barbers of India are also phlebotomists; some are lithotomists, and all are general surgeons. A glance at their 'armamentarium' would make an English surgeon shiver, and would recall to his memory with painful distinctness the primitive tortures depicted by old Scultetus. The boiling oil and marking nut; the splints, forceps, hook, and cauteries,—the leaves, powders, and liniments; the razors, scalpels, needles, and seven-inch bent nails. How poor humanity bears it, I cannot explain, for surely it would be better, one would think, in prospect of such help, 'to bear those ills we have than fly to others that we know not of.' No cure without agony seems to be the rule. Violence and pain appear to be the invariable accompaniments of all native treatment, whether for old or young, for the strong man, the sickly woman, or the feeble infant. Especially is the actual cautery highly valued and liberally applied; to the head of the puerperal female; in multitudinous spots over the body of the convulsed child; in tartan streaks over the abdomen of the colic-troubled infant; or by the heated ramrod, in various erratic figures, over the stomach of the dyspeptic Arab or merciless Rohilla.

"Of the native oculists, what can be said? in the unexcitable constitution of the native their rude and simple operation for the depression of cataract is at times successful; too often, however, it is destructive of vision. The native lithotomists know nothing of anatomy, and, like Frere Jacques, cut 'on the gripe.' Native midwives—what shall we say of them? I cannot, in a general assembly like this, reveal one tithe of what I know of their ignorance, superstition, merciless tortures, and unhesitating sacrifice of human life, when goaded to desperation by ignorance or by superstition. The amount of female and infant life lost in childbed in India, from ignorance and crime alone, is beyond computation.

"India's wants' is a current phrase. Do we, when we use it, clearly distinguish between India's wants and England's wants in India? By present medical arrangements, not one-hundredth part of this country's wants are or can be met. India's wants must be met *by her own sons*. We can be little more than the teachers of India's teachers. India wants her village barbers to be taught sufficient of the art of surgery to save life and limb; she wants her native midwives to be taught practically the ordinary duties of their delicate and necessary profession; she wants her oculists to be instructed, so that eyes may be saved, not destroyed; she wants her native hakeems and doctors to be taught the elements of their profession, so that remediable disease may be cured, poisoners may quake, vaccination may progress, and the inhabitants may not desert their homes when smallpox and cholera come like destroying angels. India wants her own tools, so to speak, to be improved, and if possible retained, so that hereditary prejudices may not be traversed until the people learn to question these prejudices, and more trustworthy agents can be provided. India wants, moreover, outlets for her sons of all classes; not only for the studious and learned, but for the sensible and the willing of her larger as well as smaller towns. In bringing western knowledge to bear upon India, we have perhaps too strong a tendency to begin at the top, and leave the bottom to take care of itself; to select the imposing and grand rather than prosecute the humble and useful. I think, India requires us to begin at the top and at the bottom too; to work from above down, bringing science to bear upon the masses in that direction; to work also from below up, bringing sense and judgment to modify and improve native and existing materials, so that the co-operation and the very prejudices of the people may be on our side. What would be thought of England if she strung this land from end to end with telegraphic wires, and yet neglected the native roads, native tanks, and native bunds. Turkey, with its civilisation of the nineteenth century, forced on it by Europe, and engrafted on the civilisation of the sixth, may teach us a valuable lesson here in India. But this land needs something more than the education of her village practitioners; she requires a better style of medical man to overlook these; one thoroughly

educated in his profession, as those are who hold the diploma of this college, or thoroughly inured to all practical facts by long experience, even though he be not learned, in the university acceptation of the term. Such men are to be found in our subordinate services, men of experience, judgment, and merit. Men of this stamp, familiar with the customs, prejudices, and languages of the people, are the very superintendents a scheme of this kind would stand in need of. Such positions of responsibility, given as the reward of faithful services or of marked merit, would draw good material into the service, and outlets would be provided for those whose outlets are very few indeed.

"But our subject would be incomplete, and injustice would be done to the sacred profession of medicine, were we to fail to point out how important an agent it must be in assisting the operations of that higher civilisation which God has commanded us to go and publish to all nations.

"What are the difficulties which clog the missionary's path, which delay his success, and postpone his triumphs; and can medicine do nothing to remove them?

"Does he complain of caste; of the difficulty of acting upon the female part of the population; of closed doors and hermetically sealed domestic life; of prejudices and fears; of motives misunderstood; of dealing with the outer and being barred admission to the inner man? To such a one we say, your Master healed that he might teach; your Master fed that he might gain men's willing ears; your Master commanded his apostles and his infant church to heal, and he gave them the power to heal, in imitation of his own example. Has medicine no influence upon caste? Inquire and see. Has medicine no power over the female? Disease is catholic, and where disease enters, the medical man will not long find the door barred. Disease is catholic, and brings the female and the child as well as the adult under man's benignant influence. The art of healing, too, appeals to man when his heart is low and sick and faint, when 'who will show us any good?' is the pleading of the depressed spirit. The physician passes through the outer phantom and gets to the inner man. He sees humanity, not in its court, but in its every-day dress, when the secrets of the heart are revealed. The physician brings a tangible good, the patient presents a living and natural text, with his heart softened and ready for impressions. Through the kindness of his physician, man has regained faith in his brother man, and his heart is ready, more ready than it was, to regain faith in God too.

"Surely medicine must be a valuable handmaid of religion; its help; its pioneer; the leveller of many a mountain of difficulty; the filler up of many a valley of prejudice and aversion.

"India is a grand field for the medical missionary. I hold strong views on this point, for I believe that no mission to the heathen in this land, in the earlier stages of that mission at all events, is complete in its agency, or is acting up to the example and precept of its great Head, which does not recognise and act upon the principle, that medicine is not only the handmaid of religion, but *'the necessary complement of the Christian ministry.'*

"A few words in conclusion. The civilisation of India is the desire of all. In this great work we are all, whether clerical or secular, fellow-workers. To be fellow-thinkers of God as men of science, what true nobility; to be fellow-workers with Him, what true utility; to be fellow-lovers and fellow-helpers of our brother man, what true humanity!

"India needs light; light *direct*, light *indirect*. Workers in this enlightenment are not rivals, but allies. Let us act upon man from his spiritual, mental, and physical sides, joining hands as friends, not as foes.

"Young men! you who are entering upon the active duties of life and of the public service, and who occupy these benches for the last time to-day, I, in the name of the Principal and Professors, bid you farewell, and wish you a hearty '*God speed*.' I address each of you for the last time in the words of a celebrated physician, words which adorn, as you know, one of your

college text-books :—"Thine is a high and holy office; see that thou exercise it purely; not for thine own advancement, not for thine own honour, but for the glory of God and the good of thy neighbour. Hereafter thou wilt have to give an account of it." (*Hufeland*).

His Excellency the Governor thanked Dr Smith for his able and suggestive address, and concluded with some observations to the students, and an expression of gratification at what he had seen and heard; encouraging the students to persevere in their studies, and promising, on behalf of the Government, to do everything in his power to promote the welfare of this excellent institution.

THE RELATIVE WEIGHT OF THE VISCERA ON THE TWO SIDES OF THE BODY.—NOTE BY DR STRUTHERS.

(To the Editor of the *Edinburgh Medical Journal*.)

UNIVERSITY OF ABERDEEN, 19th September 1863.

SIR,—Duties connected with my removal from Edinburgh to Aberdeen have prevented me from reading before now Professor A. Buchanan's remarks in your August Number, entitled "Theory of the Right Hand: Dr Buchanan's Reply to Dr Struthers." As Dr Buchanan's remarks contain nothing of the nature of a "reply" to any part of my demonstration, but relate to some parts of his own paper which he thinks require explanation, no remarks of the nature of a reply are required from me.

I desire, however, that it be clearly understood that I have taken nothing from Dr Buchanan's paper which contributes or could contribute to the anatomical and experimental investigation, the results of which I have related in the June Number of your Journal in my paper "On the Relative Weight of the Viscera on the Two Sides of the Body." There is nothing in Dr Buchanan's paper which could help such an inquiry. Dr Buchanan's theory merely served to give me an additional interest in undertaking the inquiry. I wish it also to be understood that, although I have established the conclusion that the viscera are naturally considerably heavier on the right side than on the left, and have thus given him a secure basis on which he may rest his theory, instead of on the very doubtful basis of his supposition that this is accomplished by the inspiratory act, —I have not adopted Dr Buchanan's theory that a greater weight of the right side is the explanation of the preferential use of the right hand. I was concerned only to prove the anatomical fact, and to view it in its zoological and developmental relations, and I have mentioned, at the same time, some additional facts regarding the position of the viscera which cross the middle line, which I ascertained in the course of the investigation. It still remains to be determined how much the preferential use of the right hand by all nations of mankind is due to parental training, how much to physiological inheritance, how much to the constantly operating physical agency of visceral gravitation, or to the combination of these, or to some other cause not yet suspected. The subject of true left-handedness, especially as to the cases in which it is said to have been hereditary, requires to be more carefully investigated than has yet been done.

I have much pleasure in again referring those who may be interested in the question of the right hand to Dr Buchanan's paper (*Mechanical Theory of the Predominance of the Right Hand over the Left*, etc., by Andrew

Buchanan, M.D., Professor of Physiology in the University of Glasgow). Dr Buchanan has the merit of having promulgated an original theory, the very ingenuity of which is likely to hand his name down to posterity as its author. The weak point of his argument is the theory on which he has rested his theory. Those who may desire anatomical and experimental proof that the viscera are heavier on the right side than on the left, I must refer to my own paper above named.

Dr Buchanan has in his "reply" made some, as it seems to me, unmeaning additions to the tabular view which I constructed, showing the weight of the viscera on each side, and in the inner and outer regions into which I subdivided each side. All this cost me a great deal of labour, and perhaps Dr Buchanan, and other writers and teachers who may have occasion to refer to the subject, will be so good as to recollect and acknowledge that all that is valuable in the table, as well as the whole demonstration, is mine.

Dr Buchanan refers to myself and my endeavours to contribute to the science of anatomy in terms which I fear are too flattering, but which I value the more as coming from one whose name has long been so well known as an original contributor to several departments of physiology and surgery.—I am, Sir, your obedient servant,

JOHN STRUTHERS.

ON THE UNFAVOURABLE INFLUENCE OF SUDDEN CHANGE OF CLIMATE.

By J. HENRY BENNET, M.D., Physician-Accoucheur to the Royal Free Hospital, etc.

I AM not aware that the attention of the profession has yet been drawn to the unfavourable influence exercised upon health by the sudden change from a northern to a southern, or from a southern to a northern climate, so constantly experienced in these railroad days. And yet this influence exists, even for the strong and well, and is still more decided in the case of invalids. It ought, therefore, to be recognised and taken into consideration by those who send patients abroad, in order that they may instil caution into their minds, and point out the mode in which any bad effects from the change of climate may be avoided.

During the last few years I have four times left England in October, arriving within a week or ten days in the south of Europe, at Mentone; and four times I have left Mentone in May, and arrived soon afterwards in England. At Mentone I am at once called upon to take charge of a number of fellow-countrymen, winter emigrants like myself. On my return to London I see many of them as they arrive or pass through, or hear of them if they, as often occurs, pass to other allegiance. The autumn and spring illnesses from which they often suffer did not at first strike me as presenting anything peculiar; but gradually, as experience has increased, I have become aware, first, that these morbid accidents present themselves each year with stereotyped regularity; and, secondly, that they are, in a great measure, referable to the *sudden* change of climate rendered possible by rapid railway communication, of which advantage is taken owing to the very natural desire to get over the journey as quickly as possible.

The most marked peculiarity of our climate, as distinguished from that of the continent of Europe, and especially from that of the Mediterranean basin, is the great quantity of vapour which our atmosphere contains. According to Admiral Smyth, the atmosphere of England contains habitually double that of the Mediterranean region. His data are substantiated by a series of observa-

tions which I made last winter with the wet and dry bulb thermometers at Mentone. I found the difference between the two was nearly always throughout the winter very great, generally varying from five to ten degrees Fahrenheit. We have the proof also of this fact in our white-blue cloudy sky, and in our mitigated summer heat. The watery vapour screens the earth from the sun, and absorbs its heat; and hence, in part, our mild summers. The absence, or the sooner diminished amount, of this watery vapour in the atmosphere of the Mediterranean region gives a dryness, a clearness, an elasticity to the air which is very peculiar. It enables the light and heat of the sun more easily to reach the earth, and accounts for the clear deep blue of the sky and for the scorching heat of the sun's rays even in midwinter. As a necessary corollary, the nights are clear, brilliantly illuminated by stars and moon, and cold by comparison with the day.

Professor Tyndall, in his lecture on "Heat considered as a mode of Action," recently delivered at the Royal Institution, has shown more clearly than any of his predecessors how great is the heat-absorbing power of aqueous vapour, and its consequent influence upon climate. The heat-absorbing power of moist air varies with its density. It is as high as ninety-eight when the barometer is at thirty inches, and but sixteen when the barometrical pressure is only five inches. Thus the nearer the aqueous vapour is to the earth, where the barometrical pressure is the greatest, the greater its heat-absorbing power, and the greater the protection it affords from the scorching effect of the sun's rays during the day, or from extreme radiation of heat during the night. Professor Tyndall applies these facts by stating that the removal for a single summer night of the aqueous vapour from the atmosphere of England would be attended by the destruction of every plant which a freezing temperature could kill. On the other hand, the day would be as scorching as the night would be cold.

These facts give us the key to the Mediterranean climate—to its hot sunshine during the day in winter, and to its cool nights. The diminution of aqueous vapour in the atmosphere, on the one hand, allows the sun's rays to reach the earth during the day; and, on the other, allows the earth's heat to radiate rapidly into space at night.

In October invalids leave England's moist atmosphere when the weather is already getting cold, and the evenings and mornings are foggy. The express train is often taken at Paris for Marseilles, and in sixteen or twenty hours the dry sunshiny Mediterranean region is reached. There it is still summer; the sun is powerful; the temperature high, usually above 70° Fahr. The liver and skin, which were already in England relieved from the stimulus of our mild summer heat, are called violently and suddenly into action. The result is diarrhœa, bilious attacks more or less severe, skin irritation, urticaria, boils, &c. Diarrhœa is so common that few northerners escape; and it is universally, but erroneously I believe, attributed to change of food, to wine, and to such influences.

These attacks are most severe with those who hurry their departure from England, push rapidly to their destination, and reach the south in September or early in October. In my opinion the last week of October is quite early enough for invalids, or even healthy northerners, to arrive in the south of Europe. The cool weather of autumn does not begin until about the second week in November; and a month or six weeks of hot, oppressive southern weather, with a liberal allowance of mosquitoes, is generally damaging to the health of "north country people." The worst cases of bilious derangement that I have to attend each autumn are amongst such.

By the end of April or the early days of May the sheltered Riviera under-cliff begins to be disagreeably warm. Moreover, fine midsummer weather has been enjoyed so long that it becomes difficult to believe that winter still reigns in the north. The invalids are tired, also, of their six months' absence from home, and their hearts are set on the return. Once the homeward journey

has commenced it is generally rapidly carried on, and many arrive in Paris or in England early in May, much too soon for their own good. In the north of Europe, if the wind is from the south, in April and May the air is mild and balmy, and vegetation makes rapid strides; but until the mountain lands of Norway and Sweden are freed, or partly so, from their canopy of snow, which does not take place until June, a north-east wind brings cold, chilly weather and night frosts. It is this cold, chilly atmosphere, an atmosphere, too, more or less loaded with moisture, that often meets the invalid on his return home. The skin and liver, previously in full operation, are checked suddenly if the journey has been a rapid one; extra work is thrown on the lungs and kidneys; and very often severe attacks of influenza, of coryza, of bronchitis, of hæmoptysis, are the result.

I have pointed out the evil; I must now point out the remedy. It is to ignore the facilities afforded by express trains and to make both the southern and the northern journeys in such a manner as to become acclimatized to the great changes.

Serious invalids who intend to winter in the south of Europe, are better out of England the last week in September, or early in October; but, as we have seen, their winter residence is scarcely fit for them before the end of October. The two, three, or four intervening weeks should be spent on the road. A quiet, leisurely progress southward allows the human economy to gradually accustom itself to the change of climate. A favourite station with me is Fontainebleau, thirty miles south of Paris. The climate is continental, drier than that of England, the hotels are good, and the forest scenery is very interesting and beautiful. A week or ten days may be spent there both pleasantly and profitably for health, much more so than in Paris.

Further south we have Valence, Aix, Nîmes, Arles, &c. I would, however, more especially recommend a small watering-place which I may nearly lay claim to have discovered, as far as my countrymen are concerned. It is Gréoulx, a five hours' picturesque drive from Aix-en-Provence. Gréoulx is merely a village, with a large comfortable hotel, in its own grounds, erected over a hot sulphur spring, one of the most powerful and longest known thermal waters of the south of France. Its celebrity, however, is all but entirely confined to that part of France. I myself found it out by the map, whilst trying to discover an autumn and spring intermediary station. I visited it last May, and was much pleased with the scenery from Aix, with the hotel and its grounds, and with the very lovely district in which it is situated. There are two wild mountain rivers—the Durance and one of its tributaries—within a mile of the house, and fishing and shooting are provided for the inmates, with all the resources of French social country life. The hotel makes up some 200 beds. Gréoulx is quite out of the beaten track, far away from railways, amongst the hills of Provence, and a residence there must have many charms. I sent a little colony of my Mentone friends and patients there this spring, and they were all delighted with it. There is an intelligent resident French physician, Dr Jaubert. I do not think a pleasanter place could be found to spend a fortnight in on the way south.

The same course can be followed by invalids on their return north. The departure from Mentone, Nice, Cannes, or from Italy or Spain, can take place at the end of April, or on the first day of May; and a leisurely journey may be made towards the north, so as to reach England by the end of May or the first day of June. Gréoulx is open on the 1st of May, and is even thus early very lovely; the deciduous trees in full leaf, and the nightingale in full song. A fortnight at Gréoulx, a week at Fontainebleau, and May is pleasantly consumed, and England and its climate reached by slow stages, which neutralize the risks attendant upon the "cannon-ball" style of travelling.

—*The Lancet.*

Grosvenor-Street, August, 1863.

ARMY MEDICAL DEPARTMENT.—SUCCESSFUL CANDIDATES.

CHELSEA, AUGUST 10, 1863.

C. J. Atkins.	J. P. Delmege.	R. W. Lawless.
J. Y. Beattie.	F. Dick.	P. P. Lyons.
Jas. Barker.	W. Elgee.	H. Morris.
F. A. Byrne.	R. W. Forsayeth.	A. F. Preston.
J. E. Barker.	Geo. Fearon.	J. A. Shaw.
R. H. Bolton.	V. Gouldsburg.	W. P. Smith.
J. Barry.	J. R. Greenhill.	A. W. Troup.
R. Cunynghame.	H. R. Greene.	A. Thomson.
C. M. D. Cuffe.	C. Haines.	A. Turner.
E. H. Condon.	F. Howard.	C. J. Weir.
H. C. Collier.	W. R. Kynsey.	Thos. White.

DINNER IN DUBLIN TO PROFESSOR SYME OF EDINBURGH.

SEVERAL of the leading members of the profession in the Irish metropolis took the opportunity of Professor Syme's recent visit to Ireland to entertain him at a sumptuous banquet, given at the Salt Hill Marine Hotel, near Dublin. Dr Adams, Surgeon in Ordinary to her Majesty in Ireland, presided on the occasion. The usual loyal toasts having been drunk, the president rose and said—I have now the honour of proposing to you as a toast the health of our worthy guest, Mr Syme, the Professor of Clinical Surgery in the University of Edinburgh. He has paid us the compliment of visiting our hospitals and museums; and before we had been made aware by any public announcement of the arrival of so eminent a surgeon amongst us, he had himself the kindness to visit as many of us as time permitted him to do. We soon learned that his sojourn amongst us must be short, and we felt that, as we wished to have an opportunity of enjoying his company even for a few hours, we must without delay extemporize a little Medico-Chirurgical Society, to invite him to give us the pleasure of his company at dinner, an invitation we see he kindly accepted; and now be it understood that this small assembly does not represent any learned body or college, but it is to be looked upon merely as a "society of friends," assembled here on this auspicious occasion to give Professor Syme, as we now do, a hearty welcome, a sincere "cead mile failte." We are all glad to have this opportunity of becoming acquainted with a man whose fame is more than European; we can say it without flattery, his reputation is world-wide. The man who is much occupied in the practice of surgery, and who has had the advantage of having been early nominated as surgeon to a large hospital, incurs an obligation that he should from time to time faithfully communicate to the profession the results of his experience. How has our guest fulfilled this obligation? He has been, he himself tells us, "for a long period of years engaged in teaching surgery, with the advantage of a great hospital as a field of instruction." He has been engaged daily in giving oral lectures to a large class of young students in Edinburgh, and he has published practical works which students of surgery of all ages can read in every part of the world. He has worked zealously, and I trust, in every sense of the word, profitably. His large work in 1841, entitled, "Principles of Surgery," has been in our libraries for many years, and often consulted by us; and in his recent work, "Observations in Clinical Surgery," 1861, he has given graphic accounts of many important surgical cases and operations, some of which, as it appears to me, not only do credit to himself and to his country, but also to the age we live in. I allude specially to his operations in desperate cases of large axillary and carotid aneurisms, in which, no other resource appearing available, he had boldly recourse to the old operation for aneurism; he ventured to make incisions into the large aneurismal sacs, and dexterously

succeeded in securing both ends of the large arterial trunks, rescuing the patients from impending death, and curing the disease. We offer such a surgeon a hearty welcome to our shores, and we congratulate him on his look of vigorous health, which it may be a satisfaction to his distant friends to know is hereby fully certified by this short-lived Medico-Chirurgical Society of ours. Let me add, while I again repeat the toast, "The health of Professor Syme," that we hope he may long be enabled to continue his valuable professional labours, by which he has already advanced, as well as adorned, the science and art of surgery. Professor Syme, in reply said:—Mr Adams and Gentlemen,—I am not a man of many words, or of very ready speech. Although I have lately, during my hurried visit to the south of Ireland, performed a ceremony at Blarney Castle which is said to be strangely effectual in freeing the hinges of the tongue, yet I feel at the present moment no need to draw upon my newly-acquired power. Few occasions of my life have been, I can sincerely say, more gratifying to me than this, and my reception here is a gratification to me I shall feel as long as I live. It is now nearly forty years since I first visited your city,—in the year 1825; being then an anatomical teacher, I came to Dublin to pursue some anatomical researches which I could not follow out at that time in Edinburgh, owing to the absolute deficiency of subjects in our schools. Every facility was afforded to me by my respected friend, the late Mr Cusack, and I remained for some time working in the school with which he was then connected. I was filled with admiration for the surgeons of Dublin. I desired to follow the example I had seen. It was my ambition to emulate the surgical practice and teaching of the Irish school. The kind expressions manifested towards me this evening have convinced me that I have not failed in attaining my object, and that for the advancement of surgery I have not lived in vain. Fortunately for progress, differences of opinion will exist among professional men, and though, in some few instances, asperities will accompany them, it is surprising how these may be smoothed away by personal intercourse, and how much good may be done by a kind expression of the eye, or a friendly grasp of the hand on first meeting. May I hope that some at least of those present will visit Edinburgh ere long, and thus let us mutually profit by such kindly intercourse. After the lapse of some time, Mr Syme again rose, and having asked permission to propose a toast, gave, in complimentary terms, "The health of the President," which was briefly responded to. Among the toasts subsequently drunk were,—*"The Medical Council,"* replied to by Drs Stokes, Apjohn, and Leet, *"The University of Edinburgh,"* *"The University of Dublin,"* etc., etc.—*The Medical Times and Gazette.*

ON THE CAUSE OF THE SUN'S HEAT.

BY PROFESSOR TYNDALL.

THERE is another theory, which, however bold it may, at first sight, appear, deserves our earnest attention. Solar space is peopled with ponderable objects: Kepler's celebrated statement that 'there are more comets in the heavens than fish in the ocean,' refers to the fact that a small portion only of the total number of comets belonging to our system, are seen from the earth. But besides comets, and planets, and moons, a numerous class of bodies belong to our system,—asteroids, which, from their smallness, might be regarded as cosmical atoms. Like the planets and the comets these smaller bodies obey the law of gravity, and revolve on elliptic orbits round the sun; and it is they, when they come within the earth's atmosphere, that, fired by friction, appear to us as meteors and falling stars.

On a bright night, 20 minutes rarely pass at any part of the earth's surface without the appearance of at least one meteor. At certain times (the 12th of August and the 14th of November) they appear in enormous numbers. During nine hours of observation in Boston, when they were described as falling as

thick as snowflakes, 240,000 meteors were calculated to have been observed. The number falling in a year might, perhaps, be estimated at hundreds or thousands of millions, and even these would constitute but a small portion of the total crowd of asteroids that circulate round the sun. From the phenomena of light and heat, and by the direct observations of Encke on his comet, we learn that the universe is filled by a resisting medium, through the friction of which all the masses of our system are drawn gradually towards the sun. And though the larger planets show, in historic times, no diminution of their periods of revolution, this may not hold good for the smaller bodies. In the time required for the mean distance of the earth from the sun to alter a single yard, a small asteroid may have approached thousands of miles nearer to our central luminary.

Following up these reflections we should infer, that while this immeasurable stream of ponderable matter rolls unceasingly towards the sun, it must augment in density as it approaches its centre of convergence. And here the conjecture naturally rises, that that weak nebulous light, of vast dimensions, which embraces the sun—the Zodiacal Light—may owe its existence to these crowded meteoric masses. However this may be, it is at least proved that this luminous phenomenon arises from matter which circulates in obedience to planetary laws; the entire mass constituting the zodiacal light must be constantly approaching, and incessantly raining its substance down upon the sun.

We observe the fall of an apple and investigate the law which rules its motion. In the place of the earth we set the sun, and in the place of the apple we set the earth, and thus possess ourselves of the key to the mechanics of the heavens. We now know the connexion between height of fall, velocity, and heat at the surface of the earth. In the place of the earth let us set the sun, with 300,000 times the earth's mass, and, instead of a fall of a few feet, let us take cosmical elevations; we thus obtain a means of generating heat which transcends all terrestrial power.

It is easy to calculate both the maximum and the minimum velocity, imparted by the sun's attraction to an asteroid circulating round him; the maximum is generated when the body approaches the sun from an infinite distance; the *entire pull* of the sun being then expended upon it; the minimum is that velocity which would barely enable the body to revolve round the sun close to his surface. The final velocity of the former, just before striking the sun, would be 390 miles a-second, that of the latter 276 miles a-second. The asteroid, on striking the sun with the former velocity, would develop more than 9000 times the heat generated by the combustion of an equal asteroid of solid coal; while the shock, in the latter case, would generate heat equal to that of the combustion of upwards of 4000 such asteroids. It matters not, therefore, whether the substances falling into the sun be combustible or not; their being combustible would not add sensibly to the tremendous heat produced by their mechanical collision.

Here, then, we have an agency competent to restore his lost energy to the sun, and to maintain a temperature at his surface which transcends all terrestrial combustion. The very quality of the solar rays—their incomparable penetrative power—enables us to infer that the temperature of their origin must be enormous; but in the fall of asteroids we find the means of producing such a temperature. It may be contended that this showering down of matter must be accompanied by the growth of the sun in size; it is so; but the quantity necessary to produce the observed calorific emission, even if accumulated for 4000 years, would defeat the scrutiny of our best instruments. If the earth struck the sun it would utterly vanish from perception, but the heat developed by its shock would cover the expenditure of the sun for a century.

To the earth itself apply considerations similar to those which we have applied to the sun. Newton's theory of gravitation, which enables us, from the present form of the earth, to deduce its original state of aggregation, reveals to us at the same time, a source of heat powerful enough to bring about the fluid state—powerful enough to fuse even worlds. It teaches us to regard

the molten condition of a planet as resulting from the mechanical union of cosmical masses, and thus reduces to the same homogeneous process, the heat stored up in the body of the earth, and the heat emitted by the sun.

Without doubt the whole surface of the sun displays an unbroken ocean of fiery fluid matter. On this ocean rests an atmosphere of glowing gas—a flame atmosphere, or photosphere. But gaseous substances, when compared with solid ones, emit, even when their temperature is very high, only a feeble and transparent light. Hence it is probable that the dazzling white light of the sun comes through the atmosphere, from the more solid portions of the surface.
—*Heat considered as a Mode of Motion.*

FACULTY OF PHYSICIANS AND SURGEONS, GLASGOW. MEDICAL OFFICERS OF THE CHANNEL FLEET.

On the evening of Saturday, the 5th Sept., this ancient corporation had the pleasure of entertaining at dinner, in their hall, St Vincent Street, the Medical officers of the Channel Fleet, on their visit to the Clyde. Flag-Surgeon Sloggett, Surgeons Jack of the *Royal Oak*, Wells of the *Warrior*, Speer of the *Liverpool*, Scott of the *Resistance*, Courtney of the *Defence*, Comrie of the *Edgar*, along with Assistant-Surgeons Jones and Dr Haines, were present. Staff-Surgeon Lewins, and Surgeon Leitch, of the 41st Regiment, now in Glasgow, were also present. The President, Dr Ritchie, who was in the chair, in addition to the guests of the evening, was supported by Professors Rainy, Pagan, and Easton; and the Visitor, Dr J. G. Fleming, who was croupier, by Professor Gairdner, and by former Presidents, Dr A. D. Anderson, Dr Hunter, and Dr Lyon. A large number of the other Fellows of Faculty were present at dinner. After the usual loyal and patriotic toasts had been drunk, "The Medical Department of the Navy" was given by the President, and that of the "Army" by the croupier in appropriate speeches. The existing high efficiency of the Medical Department of the Navy, and the improved position of naval Surgeons, was favourably contrasted with their past condition in former periods, and to them was accorded the credit of having achieved, through many difficulties, so much for the sanitary welfare of the service. It is not often that the Medical officers of the public services have an opportunity of meeting with a collective body of their professional brethren engaged in civil practice; and really on this occasion all present seemed to have much pleasure and gratification from the cordial and kind interchange of friendly feelings and sentiments which took place throughout the evening.

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| Births, Deaths, and Marriages, Monthly Return of, for Aug. 1863. | Gazette Médicale de Paris,—Nos. 35, 36, 37, 38. 1863. |
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| Dublin Medical Press,—Aug. 26; Sept. 2, 9, 16, 23. 1863. | Journal de la Physiologie (Brown-Séguard's), —April. Paris, 1863. |
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| Gazette Hebdomadaire de Médecine, etc.—Aug. 28; Sept. 4, 11, 18. Paris, 1863. | Revue de Thérapeutique Médico-Chirurgicale,—Sept. 1, 15. Paris, 1863. |

Part First.

ORIGINAL COMMUNICATIONS.

ARTICLE I.—*On Delirium Tremens, as distinguished from other Effects on the Mind, real or apparent, of Excess in Drinking.* By WILLIAM SELLER, M.D., F.R.S.E., Fellow of the Royal College of Physicians of Edinburgh.

TWO principal evils result from an indiscriminate application of the term "Delirium Tremens" to disordered mental health connected with excessive drinking. Of these, the first is, that mere drunken violence, not dependent on any irresistible delusion, is apt to obtain the same immunity from punishment as is claimed for the mental aberration of genuine delirium tremens, in common with other forms of real insanity. The other is, that owing to the spontaneous cure, when liquor is withheld, of several even alarming states consequent on drinking, it is erroneously inferred that the proper treatment of genuine delirium tremens (as has been taught of late) is to do nothing.

Nor are these the only reasons (as will readily occur to every one) why pains should be taken to distinguish delirium tremens from other mental disorders which either do or seem to take their origin from excessive drinking.

My object at present is, not to point to any infallible principle of diagnosis, but to show how readily one may be deceived in regard to the exact nature of the maladies in question, by dwelling too much on their apparent cause.

To pass over irregular forms of fever and inflammatory affections of the brain and its membranes which may succeed drinking and sometimes cause difficulty, the other resembling maladies, to which the name of delirium tremens should be refused, come, as far as my observation has extended, under the three following heads:—*First*, Abortive cases or threatenings of delirium tremens; *Second*, Cases of insanity, either temporary or more permanent, the immediate precursor of which is excessive drinking; *Third*, Mere fits of drunkenness, with much violence or extravagance, but without distinct delusion.

Abortive Cases.

What I term abortive cases are often alarming enough, as presenting even all the symptoms usually premonitory of the perfect disease, while their progress only stops short of what must be regarded as the essential characteristic of a regular form of delirium tremens, namely, a delusion or succession of delusions commanding belief and leading to action.

In abortive cases, there may be a greater or less change on the patient's ordinary bearing; there may be alteration of the voice; there may be a sudden starting in the midst of a sentence, and a fixing of the attention on something at a distance in the room; there may be even tremors of the hands, tremors and startings of the lower extremities, and a tremulous tongue, while such alarming symptoms may have been preceded by nearly sleepless nights and uneasy dreams; moreover, these dreams may be attended with a momentary belief in their reality after the patient awakes. If, however, he can dismiss the illusions of his dreams, he may fall, either with or without the aid of treatment, into a quiet sleep and awake nearly recovered. Sometimes the abortive case takes on a more chronic character, and may continue for a number of days, the patient sleeping heavily at intervals, awaking to long fits of restlessness, all the while being averse to be left alone, and troubled with sudden severe attacks of vomiting; yet, at length, he begins to obtain refreshing sleep, and gradually gets well. The chief obstacle to the immediate restoration of health in most seizures of the abortive disease is the derangement of the digestive organs which is so often concomitant.

Cases of this kind are unquestionably threatenings of delirium tremens, but being destitute of the characteristic irresistible delusion should be kept apart and denied that name. To draw inferences from such abortive cases, and to make these inferences a part of the medical history of the perfect form of the disease, can lead, it is plain, to nothing but error.

Every medical practitioner must be familiar with abortive cases of this kind, and to designate such delirium tremens is neither conducive to the improvement of medical knowledge, nor just to the patient, who is sometimes far from being an habitual drunkard—an imputation implied in the having undergone an attack of delirium tremens. It happens that men entitled to be described, at least, as not intemperate, are sometimes so unwise as much to exceed their usual allowance of liquor, when things occur to create great mental annoyance. In such circumstances, I have several times seen symptoms arise of the kind just referred to. Here, probably, the mental affection, which led to the excess, is as much concerned in the origin of the disturbance as the excess itself.

Of the effect of mere harass of mind, aggravated by the loss of sleep, to produce transitory delirium in a person not constitutionally

disposed to mental derangement, I had a striking example during the great railway mania, some fifteen or sixteen years ago. I was sent for to the counting-house of an Edinburgh firm about mid-day, where I found a gentleman from the country held down on the floor by several people. He was struggling violently with them, and by turns raving on the idea that he was charged with having committed some great offence. I had persuaded the people struggling with him to allow him to get up, when, just as he rose to his full height, and he was particularly tall, the door opened, and an eminent medical man, who also had been sent for, entered. Towards him he immediately rushed with his uplifted fist, calling on him by name, in a loud voice, to say if he was mad. My friend, though the very reverse of a timid man, was naturally alarmed, and felt strongly inclined to send the patient at once to an asylum,—but it was finally settled first to make trial of treatment, for a few hours, as there was a bed available, away from the bustle of business, at the top of the house. After an opiate he had some sleep, and in the evening, though still wavering, he was plainly much more himself. Next morning, after a tolerable night, he had so much recovered, that there was little doubt of the paroxysm passing entirely away. He came round quickly, and in the long period which has intervened, he has never shown any tendency to mental disturbance, but has been, what he always was esteemed before, an active and very efficient man of business.

Previously to the attack, which commenced in the night before, he had been for some weeks overwhelmed with occupation, and, finally, had fallen away from his sleep. The circumstance, I believe, which his troubled imagination had converted into a crime, or at least into a grave offence, was, that being arbitrator in a matter of importance, he came to think that he had allowed some evidence to be recorded in behalf of one of the parties which ought to have been rejected. It was certain that this gentleman had been absolutely temperate for some time before. If it had appeared that he had taken an extra glass, for a few evenings before the attack, in order to calm his mind and procure sleep, how readily might this case have figured as one of delirium tremens, cured by opium !

Cases of Insanity, temporary or more permanent, the immediate precursor of which is Excessive Drinking.

It not unfrequently happens that an outbreak of insanity closely coincides in point of time with an excess in drinking. I do not here refer to the form of insanity which has been termed oinomania or, somewhat absurdly, dipsomania. If there be just ground for establishing oinomania as a form of mental derangement, the insanity should precede, not follow, the intemperance. The real insanity, in such a case, is the propensity, the uncontrollable desire to indulge in drinking at the cost of everything which is most prized in social life. It is still doubtful if oinomania be a well-

founded distinction. As men are subject to vicious indulgence in tobacco, opium, and other narcotics, so are many prone to periodical fits of drunkenness, who are mad neither when they begin, nor during the course of the paroxysm of drunkenness. Such men often sacrifice everything to this inordinate propensity. The paroxysm is called *oinomania* only if they show signs of madness during the fit. Thus, the madness, when it occurs, is not the cause of the drinking, but the effect of the excess.

Among persons at large who are either on the verge of insanity, or actually insane, the abuse of strong liquors may give rise to cases apt to be confounded with delirium tremens. As delirium tremens has very much the character of a specific disease, it should not be rashly assumed that such persons are even susceptible of this malady, or that delirium tremens having arisen in them may be prolonged into acute mania or some other form of mental derangement. For, in the meantime, it seems preferable to keep all cases in which a taint of actual insanity is discoverable apart for further investigation, and to regard delirium tremens in its regular type as a disease brought on in the perfectly sane by excessive drinking.

Persons at large with a taint of insanity may be either under what is called the incubation of insanity, that is under a growing demonstrative predisposition to the malady which will at last break out, or may be at all times constitutionally liable to become insane under the application of certain definite exciting causes, or may be actually insane, yet possessed of a power to control the manifestation of their condition, unless when the sudden occurrence of new circumstances deprives them of such control and renders their state of mind apparent to the world.

The phrase "incubation of insanity" is familiar to medical minds. When an incubation, which plainly is but another word for an accumulating predisposition not unmarked by discoverable signs, has attained a sufficient development, any strong excitement that happens to occur may prove the immediate cause of the outbreak of the disease already impending. Nothing then is so likely to be followed by such an effect as deep excess in drinking. If the medical attendant be not made aware of the evidence of a previous incubation of insanity, he can hardly avoid ascribing the outbreak to delirium tremens. It may even happen that, during the incubation of insanity, several successive transitory outbreaks of delirium may succeed as many occasions of excess, before the final, more permanent, malady becomes established. Observations made on such outbreaks seriously mislead, if used to illustrate the character of genuine delirium tremens.

The following case exemplifies the occurrence of an attack resembling delirium tremens during the incubation of insanity. Though but one outbreak was observed in this patient, it is easy to believe that several transitory outbreaks might have occurred,

under the like circumstances, at an earlier and less developed period of the incubation.

A medical student of twenty-two or twenty-three years of age came to Edinburgh to finish the studies which he had pursued for some time at Paris. He was from the first observed to be highly eccentric in various particulars, singular in his sentiments and manner, and, above all, very suspicious and jealous of being slighted by those about him. He was habitually temperate and regular in his conduct. Being, however, of a hospitable turn, he was accustomed to give an entertainment in a tavern to his intimate companions as often as he received his quarterly allowance. On one occasion this entertainment was prolonged to a very late hour; the next morning he was found to be very noisy and delirious. One of his illusions was, that some young men unfriendly to him had employed little boys to shout out, in front of the house where he lived, that he had not paid the last night's tavern bill. The disease, owing to the mode of its origin, the aspect of the patient, and the kind of delirium, was naturally regarded as allied to delirium tremens; nevertheless, it turned out to be a case of acute mania, or, at least, after a few days it took on that character. Without having entirely recovered from mental derangement, he died within a year of rapidly-developed phthisis.

During the incubation of insanity it is sometimes discovered that persons distinguished previously for temperate habits had frequently indulged in secret drinking. The drinking in such a case is not always related to oinomania. There appears to be no irresistible impulse to excess,—it is simply one of the irregularities of conduct developed by the general failure of self-control. Yet if an outbreak of insanity take place coincidently with one of these indulgences, the whole disease may for a time be imputed to excess in liquor. This at least may occur in the absence, as so often happens, of exact accounts as to the previous condition of the patient.

A gentleman, remarkable amongst his intimates for habitual restraint in the use of wine, was discovered to have generally consumed a bottle of wine during the night for a considerable period, during the incubation of mental derangement. This excess, though it may have hastened the progress of the disease, did not appear to have any particular connexion with its actual onset; neither did the desire for intoxicating liquors take any prominence during the continuance of the malady, which was prolonged for several years.

Our next subdivision includes the cases of persons at all times constitutionally liable to become insane under the application of certain definite exciting causes. It is commonly received that the victims of this unhappy predisposition suffer from the remains of some disease of the brain or injury of the head in early life. When such persons cannot resist the temptation to drink to excess, their lot is very miserable. They commonly recover at once when put in confinement, and often must suffer all the irksomeness of asylum

residence for life without a remedy. While at large they are seldom free from singularities of conduct sufficient to attract attention. Some of them, in popular language, are described as deficient so many pence in the shilling. They are frequently conscious of their deficiencies, and make unavailing efforts to remedy them. Some are quite capable of business; others are unfit for continued application to any pursuit. It is common to the persons now referred to that in general they conduct themselves with sufficient propriety. But with a certain number it happens that when they are led to indulge in liquor they become quite maniacal, often violent in the extreme, and very prone to do injury to others. It cannot be doubted that many in this condition being apprehended by the authorities and sent to an hospital, serve to swell the list of cases of delirium tremens spontaneously cured.

A young man, on whose early education every pains had been bestowed, was discovered to be eccentric in various particulars. As he approached manhood he failed in every attempt made by his relations to put him in the way of fitting himself for a profession or occupation of some kind. He was supposed to have suffered in infancy from disease of the head. He showed no defect of intelligence in ordinary conversation, being able most commonly to maintain his part, even in argument, without betraying any sign of ignorance, or deficiency of understanding. He was, however, manifestly dispirited by the consciousness of the presence of some mental defect. Latterly, he came to indulge at times in drinking, and then he became furious, threatening his relatives in the most alarming manner, and sometimes even attacking strangers. He was repeatedly sent to an asylum, for such violence, where, after a day or two, he regained his former state of mind. At one time he seemed to improve very much, so that a hope arose that the disease was passing away. But the same violence on a return to drinking has recurred.

I was, not long ago, asked to visit a case of this kind in the Morningside Asylum, on the part of the parish to which the patient belonged. He had been sent there by the authorities of a neighbouring shire on account of a murderous attack on relatives while under the influence of liquor. I found a young man as quiet and conversable as could well be described, actively engaged in assisting at some out-of-door work. He had shown no sign of derangement in the asylum; but the charges against him on several occasions before he was sent there, when excited by liquor, were too definite to permit me to recommend his dismissal, unless some friend would be surety that he would keep him from drinking.

Our next subdivision of persons at large with a taint of insanity includes those who are actually insane, but possessed of a power to control the manifestation of their condition, unless when the sudden occurrence of new circumstances deprives them of self-control and renders their state of mind apparent to the world.

It cannot be doubted that there are at all times not a few persons at large who are inwardly in a state of insanity, who indulge within themselves in morbid imaginings, viewed as realities, who are, nevertheless, able for the most part to suppress, by the power of the will, any considerable manifestation of their disorder. If men so affected ever yield to the temptation of drinking, it is readily to be believed that their self-restraint will be lost, and the usual indications of insanity brought forth. As soon as the immediate effects of the intemperance pass away, most commonly not till several days have elapsed, the control of self returns, and the disease seems to be cured. I have had an opportunity of becoming acquainted with an instance, which I believe to be of this nature, where successive outbreaks, at considerable intervals, were mistaken for attacks of delirium tremens.

Though it is foreign to our present purpose, I will add an observation which I think deserves consideration. In the kind of suppressed insanity just referred to, the outbreak may occur not only from a fit of intemperance, but from any sudden, real, or supposed provocation, while the violence so excited may even be homicidal. Thus a madman at large able to suppress the indications of his disorder may, without apparent cause, but from some concealed motive, break from his self-restraint and commit a crime. I do not propose this as a theory to account for what is termed impulsive homicidal tendency, yet it is not unlikely that some of the recorded cases of homicidal insanity on apparently sudden impulse come under this description.

The power of suppressing the indications of mental derangement which belongs to some insane persons deserves a closer examination than it seems to have yet received. With a power of this kind exerted for a short time, as, for example, during examination by a physician, the object of which is known to the patient to be confinement, the medical profession are sufficiently familiar. It less frequently happens that full evidence is obtained of a long-continued self-restraint, such as is indicated above. In the view I take, I rely much on the latter of the two following cases: both lie within my own experience.

A well-educated young man, affected but for a few days with acute mania, was admitted into an asylum, where he immediately became to all appearance well. He was made useful in the house, and in a short time was sent out on excursions in charge of patients, and was even permitted to take them to amusements in the town. At the end of three months he was dismissed cured. He went back to the house from which he was taken three months before, and in less than two hours he was as ill as on the first occasion. He was admitted again to the asylum, and immediately seemed quite well. At the end of other three months he was again dismissed, and travelled for a while before returning home. This happened a number of years ago, and there has been no indication of derangement since.

A gentleman of middle age was attacked with insanity, accompanied with much extravagance of speech and sentiment. After some weeks it was proposed to send him to an asylum, and two medical friends visited him one day in order to draw up a certificate. That day, for the first time after the outbreak, he suppressed all extravagance, and spoke quite rationally. From that day for several years during which he lived, he betrayed no distinct manifestation of derangement; yet his original character was much changed, and it was the conviction of those who enjoyed his intimacy that he cherished some of his original delusions to the last.

Fits of Drunkenness, with much Violence or Extravagance, but without Distinct Delusion.

Some men drink daily to excess without ever showing any violent excitement, even that of intoxication, till, their constitutions being gradually broken, they fall into a premature grave. Of this description not a few are attacked by delirium tremens, and in these its complications are numerous, while the disease is proportionately dangerous.

Others, again, are subject to fits of drinking. They go on the *sprees*, to use a vulgar expression, sometimes for a day or two, sometimes for a week or a fortnight, or even for a longer period, and then abstain, it may be, altogether, for a longer or shorter time. In this way a man may live for a good many years if the intervals of sobriety be considerable; and at times these extend to several months. But this drunken paroxysm may readily be confounded with delirium tremens, particularly if the patient, being of the labouring order, and less trained to carry his liquor decently before the public, be laid hold of by the police, and sent to an hospital. Such a paroxysm may continue for a fortnight or more without any illusion or any symptom which entitles the drunkard to that immunity for crimes which is now conceded to the victim of delirium tremens.

A man under this drunken paroxysm is often guilty of great violence, yet that violence is under a kind of restraint. He breaks furniture, turns his wife and children out of doors, and commits every extravagance and absurdity within his own house. That he does not often fall into the hands of the police, if his station be above that of the labouring class, is only the stronger proof of his being able and willing to exert control, unless where he feels himself to be lord and master, as in his own house.

The quantity of spirits consumed in a prolonged paroxysm of this sort, especially when money is not wanting, is wholly incredible. It does not, in general, produce the ordinary symptoms of intoxication, or at least these symptoms, if produced at first or occasionally, pass away during sleep, and there remains a restless active state of mind, kept up by the repetition of the stimulant at short intervals. The craving for this continued supply of spirits is

now irresistible, and the least attempt to interfere with its gratification provokes the utmost violence of temper, if the persons around be under the control of the drunkard, as members of his family and the like. If those beside him be not likely to be influenced by threats and violence to connive at the excesses he is practising, all manner of cunning is developed, most commonly with falsehood, to an inconceivable extent;—for there is this in common to the drunken paroxysm with insanity, that, even in persons whose ordinary sentiments in health are honest and upright, there is no reliance to be placed on what they say; and this strikes us the more as being necessarily oftener observed in the female sex when under the influence of this dreadful malady.

Even when no opposition is offered to his will, the drunkard often displays the utmost violence of temper; nothing can please him, he pours forth volleys of abuse on his children who are exerting their utmost to gratify his wants. The secret of this last kind of violence is manifestly his dissatisfaction with himself; he feels conscious of his misconduct and of the injury he is doing to his own health, and insensately pours forth the ill-humour he is in with himself upon the members of his family.

When the quantity of spirits taken daily is great, and the paroxysm much prolonged, the drunkard can neither be advanced in life nor weak in the digestive organs. The youngest and the strongest must at last yield to the power of the stimulant. Sickness at stomach begins to prevail, and, finally, severe fits of vomiting occur, of greater or less duration; after which, the drunkard falls into a long sleep, and often awakes next morning fit for his usual employment. The periodic character of the vice may be retained for a long time; for example, for twelve or fourteen years. Most commonly, however, after a time the intervals become shorter and shorter, and the mode of the drunkenness changes to that of daily indulgence, to such excess as, if not to unfit the victim for business, at least to undermine his health and lead to a premature death.

It would be surprising if one description, such as that just given, could include all cases of the same unhappy character. There are many varieties depending on the age, sex, position in society, and the personal peculiarities of the victim. Nevertheless, there are many points in common, and, in particular, there is the negative diagnostic sign, namely, the absence of delusions, such as compel belief and lead to action.

In a case of this kind, of a very extreme description, which was under my observation for more than fifteen years, till he was cut off by a chronic malady, the patient knew well that he exposed himself each time to the risk of an accession of delirium tremens, yet in all that period he never felt its approach but once; he took alarm when he became sensible of illusions which he could not repress, and instead of leaving his family, as usually happened, to send for the doctor, he ran to seek him himself. Being got home

to bed he was soothed to sleep without opium, by continual assurances that nothing preternatural was in the room; and the disease made no further progress.

It is not to be denied that an impairment of the power of self-restraint is common to every form of considerable intoxication. But many facts show how far it is from being wholly lost, and how far it is possible for the rules of society to compel its cultivation. The impairment of self-restraint is seen remarkably exemplified in the intoxication of very young men not yet trained to manners, and in that of men in the lower orders, on whose minds the necessity of orderly conduct has not been authoritatively impressed. With this latter fact, the observation of the late Duke of Wellington remarkably coincides, namely, that officers raised from the ranks often fail to carry their liquor like gentlemen. On the other hand, it has been a frequent subject of remark, that a person already beginning to talk extravagantly under the influence of liquor is restored to sobriety by the entrance of a stranger or of one in whose opinion he is desirous to stand well. Innumerable similar evidences will occur to every one to the same effect, or of the power of self-restraint which can be exerted even in deep intoxication. It is true that even in delirium tremens the patient may sometimes be reasoned out of his follies; but this is only for a time, the delusion which exists soon resumes its empire, and then all his extravagances recur as before. Till delirium tremens is established, the effects of drink are very different from madness. The notion that a man simply under the influence of strong liquor has no power of self-control, should receive no countenance.

The incident I am going to relate illustrates the kind of double self which is often seen active in the prolonged paroxysm of drunkenness. A man engaged in an extensive business was addicted to long fits of drinking, with considerable intervals of complete abstinence. During one of those fits he got into a quarrel with a neighbour, owing to the intolerable noise he was making far on in the night, and the police had interfered. His family, thinking to avoid exposure, sent to my house, which was near, for aid. Having got him into his own house I thought to persuade him to go to bed. He said that owing to having to go out at six o'clock it was not worth while to go to bed, as it was now past four o'clock. I rashly said that I would not go away unless he went to bed. But he remained determined, as, he said, he had to set men to some new work at six o'clock. Finding I was resolved to stay, he began to talk on common topics, and we got into an animated discussion on Palmer's trial, then recently over. During this time he asked for no more liquor. When it was near six o'clock he started from his chair and went to another part of the house. I heard him shouting loudly for something he wanted, while nobody answered. I then heard a loud crash, and going out I met him brandishing a heavy carpenter's axe, with which he had just split the top of a

mahogany table into two; he seemed much excited, and coming towards me with axe uplifted, he said, "What's to hinder me?" I said, "No; you know that I never come here but for your good." "I dare say you are right," he said in a subdued tone, laying down the axe. We went out together. He walked steadily, but with a kind of effort, his eyes on the ground. The paroxysm continued for a few days more, the consumption of spirits, especially in the night, being enormous; finally, as usual, vomiting came on, and, after a long sleep, he recovered his natural character, becoming in the highest degree penitent, yet at that time hopeless of reformation.

Delirium tremens presents so great a similarity in its course, under the most opposite circumstances, as to approach to the character of a specific disease, like smallpox or measles, in the train of symptoms exhibited. The description of this disease which best accords with what I have myself witnessed is contained in the memoir by Dr Ware of Boston. His account extends beyond what I can vouch for, namely, to the history of the malady when left to run its course without treatment. In the following condensed view I rely on his authority particularly for nearly all that belongs to that aspect of the disease.

The premonitory signs are not always present. These are tremors of the hands and of the lower extremities, and, in particular, of the tongue; tremulousness of the voice, with indistinct articulation; a hurried manner, general anxiety; startings and twitches of the limbs. These premonitory signs, if not peculiar to such instances as are conjoined with great disturbance of the digestive organs, are at least seldom absent in cases of that kind. Whether such signs precede the disease, or whether it develops itself of a sudden, the subsequent course is little interfered with. When the patient is under observation from the first, it is found that for one or two nights before the delirium begins, he sleeps ill, is troubled with uneasy dreams; he even gets up and wanders through his house. The dreams assume more and more the character of realities; but so long as the patient can dismiss the visions of his sleep as unsubstantial, it seems possible to check the disease. This seems to be sometimes accomplished, both at this stage and at the earlier stage, when the occasional premonitory symptoms above enumerated occur. Persons who have been several times affected with delirium tremens feel themselves safe so long as, on waking, they can withhold belief in their dreams, however vivid. Sometimes there is a night or two of complete watchfulness before the delirium is apparent, yet very often the delirium begins by an impossibility of shaking off belief in the reality of the last dreams. On rare occasions the medical attendant is the first to detect the delirium; more frequently it has been already remarked by the family, and is not exhibited at the medical man's subsequent visit, particularly if he is a stranger, so that the patient puts himself

more on his guard. Nevertheless, when no actual delirium is detected, the natural manner of the patient is changed, something will seem suddenly to catch his attention, towards which his eye is all at once intently directed. His voice is altered; he speaks louder, or with more haste than usual; he starts from bed or from his seat, and attempts to gather something from the carpet, or looks under the sofa or the bed, as if he imagined something were there; he will even insist on ripping open the bolster or the pillows to get rid of some animal lurking there. If such symptoms occur in the early part of the day there is usually distinct delirium established before evening.

There can be no doubt, I think, that if sleep can be procured even during the first night after the delirium has been thus completely established, the disease, as far as the delirium is concerned, is either removed or materially shortened.

But when the disease is left to itself during the first night of complete delirium (and that I have had occasion to remark), there is entire watchfulness, and the delirium increases during the first hours, and declines somewhat towards morning. In the morning it continues unaltered in character, but the patient is more tractable than during the night. The second night is generally worse than the first, and though there is some alleviation towards morning, yet in the early part of the third day the patient is worse than on the second day; but when the disease is to have a favourable termination the delirium of the third night is less violent than that of the preceding. The disease then, it appears, terminates spontaneously, either on the evening of the third day, or in the early part of the night, but more commonly not till the latter part of the night, or the morning of the fourth day. In those who have had repeated attacks the malady is apt to be protracted longer, even when the event is to be favourable. When the attack is to terminate unfavourably the delirium continues undiminished till the fatal event takes place.¹

The delirium in this disease is not often violent. The strange vividness of the illusions seems to impress the patient with a kind of awe. Nevertheless he is sometimes very noisy, and utters loud shrieks. These, I have thought, to result from an aggravated anguish of mind, founded on mental distress existing prior to the excess in drinking. The delirium has a more coherent character than that of fever. The patient can sometimes be reasoned out of his delusion for a while, but it quickly recurs.

Too much attention cannot be bestowed on the exact character of the delirium in every case regarded as belonging to this disease, for as often as the delirium does not square with the received standard, or any deviation otherwise takes place from the ordinary

¹ See Ware, "Remarks on the History and Treatment of Delirium Tremens." From the Transactions of the Massachusetts Medical Society; also, British and Foreign Medical Review, vol. xxiii.

type of the disease, a new diagnosis should be instituted in the well-grounded fear that what has to be dealt with is not delirium tremens, but some other of the mental disturbances connected with excessive drinking.

ARTICLE II.—*Substernal Aneurism: Clinical Illustrations of its Diagnosis.* By Dr A. H. DOUGLAS, Physician to the Chalmers Hospital, Edinburgh; formerly Physician to the Royal Infirmary.

(Concluded from page 299.)

THE cases of substernal aneurism recorded in this paper exemplify some of the more usual, and therefore more important conditions in which the disease occurs. They are intended as clinical illustrations of the most reliable indications of the lesion, and the narratives of the cases will be trusted to for the illustration of many of the signs; while, in the commentaries, some points only will be referred to. No attempt will be made to discuss particular questions, nor the details of the cases; indeed, the only question considered with any minuteness is the diagnostic value of aneurismal second sounds; the supreme importance of that subject has induced me to remark on it at some length, under Cases IV. to VIII. The subjects of *pain, respiratory obstruction, and tracheotomy*, also, are specially referred to; and Cases X. and XI. are given as instructive instances of the disease masked by co-existing lesions.

The cases now to be given chiefly belong to the class which, in the former part of this paper, were designated *saccular*, and which in general have no essential relation to disease of the heart. The occasional co-existence of *peripheral* aneurism (dilatation) of the aorta in its slighter degrees, does not interfere with their clinical character as saccular aneurisms. For clinical purposes, it is better to view substernal aneurisms in these classes, founded upon their external figure, rather than to arrange them according to the injury or disorganization of one or several of the coats of the arteries. To prevent misunderstanding, I may define in this place what is meant by the terms peripheral and saccular aneurisms. Peripheral aneurism indicates true aneurism and dilatation of the artery. Saccular aneurism embraces false aneurism, whether it be in the form of a sac or merely a deep pouch, widest at its communication with the artery.

Perhaps some will question the advantage of such records of cases in which so many particulars necessarily repeat themselves; but the never-ending variations in the symptoms of substernal aneurisms render the study of recorded cases essential. Indeed, I am persuaded that the most instructive reading on the subject of the diagnosis of substernal aneurism, are condensed narratives of carefully observed cases. No reference occurs to the changes in

the pupil of the eye connected with thoracic aneurisms, for the reason that the symptom did not occur in any of my cases. The papers of my friend Dr W. T. Gairdner¹ on that subject will repay perusal; but probably results will prove that the symptomatic value of these conditions has been over-estimated. Connected with that subject, the very important investigations of Dr Ogile² are well worthy of study, not with reference to aneurism alone, for the subject involves a larger inquiry.

I may appear to limit my view too exclusively to the physical relations of the cases; but it is scarcely possible to do so. It has become the fashion to talk of the "general," the "functional," and the "physiological" symptoms of aneurism: and in a limited sense I do not object to these phrases; but it is of consequence to keep in view that the conditions referred to are for the most part the accidental results of a purely mechanical cause, whether the organs suffering lie contiguous to the aneurism or distant from it. Experience confirms the remark of Dr Hope,—“Where an aneurism is buried deep in the chest, and not capable of being detected by sight and touch, it does not present a single general sign which is peculiar to itself, and therefore pathognomonic of its existence.” There is something fixed or essential in the general or vital symptoms of any disease, which is wanting in aneurism;—accordingly, as it is somewhere written, “in any case presenting symptoms connected with the organs in the chest, and an apparently sound state of the general health, aneurism should be suspected.” This is in a degree exemplified in the following case:—

CASE III.—Aneurism of the Ascending Aorta; no Aneurismal Sounds; Signs antecedent to Prominence and Impulse; Sudden Death.

On the 20th June 1862, I was consulted by Dr Turnbull of Coldstream in the case of his patient, an energetic and robust man, who had led an active life as an extensive farmer. His age was 50, but he appeared younger. He had lost a stone in weight. He complained of pain in the upper part of the chest, on the right side, extending from the front to the scapular region. His breathing was very slightly embarrassed, and his other functions were unaffected. Pulse 80.

History.—At no time had his health been materially disturbed; the pain of his chest had been severe for about two months, especially when cough occurred; and in the previous autumn he had consulted Dr Turnbull on account of pain which at the time appeared to be muscular.

Physical Signs.—On the right front of the chest there was slightly defective movement during inspiration; and the percussion sound was impaired as low as the fifth rib, with tenderness in the third intercostal space. On the right summit there was developed expiratory sound amounting to tubularity, and the vocal resonance and thrill were slightly augmented. No rattle of any kind accompanied respiration. The heart-sounds were unaltered, but subsequently they became sharper on the second and third right costal cartilages.

Progress, etc.—During the week following, as I learned from Dr Turnbull's first letter, his patient suffered much—his pulse at times as high as 100, and he “could not lie for a moment off the affected side.” His gums were soon but slightly affected by the calomel and opium which I had advised, and repeated

¹ Clinical Medicine, 1862.

² Med. Chir. Transactions, 1858, vol. xli.

small blisters rose well. Digitalis and nitre were then administered; and on the 7th July the patient was "much better, free of pain even on forced inspiration, and able to enjoy a little claret with his chop. Pulse 77." He now thought himself quite well. He visited the International Exhibition before the end of July, and soon regained nearly the weight he had lost.

In the end of August he suffered from return of pain; and on the 8th September, when again I saw him, he looked well. I found the dulness of percussion diminished in extent, but decided on the second, third, and fourth right costal cartilages, and on the sternum. The cardiac sounds were slightly sharper and more distinct in this situation than in the region of the heart. No impulse could be detected. His pain was not affected by posture nor by forced breathing. He often felt uneasy without pain when first he lay down at night, and he lay awake more than formerly. The treatment now was restricted to the alternate application of iodine and belladonna, with general care and quietude.

From this date the advance of the disease may be said to have been progressive. I did not see the patient till the 20th March, when I found the evidence of aneurism complete, with slight tumour and pulsation. I had been prepared for this by Dr Turnbull's letters, to which I am indebted for all I have to say of the subsequent progress of the case. In December, Dr Turnbull applied to me for a statement of my views of the case, to be submitted to Dr Watson, of London, whom it had been resolved to consult, in consequence of the unfavourable opinion I had given in September. Dr Watson's opinion was decided, that an aneurism of the ascending aorta existed. He referred to "a spot midway between the clavicle and the level of the nipple where pulsation existed, with prominence and soreness on pressure." From Dr Turnbull I learn that during January and February his patient suffered little or no distress, and "could with great difficulty be persuaded that anything was seriously wrong with him." His appetite was good, he enjoyed his claret, and took the tincture of the muriate of iron with little intermission from the time he had seen Dr Watson. "His chief complaint was of distress experienced on first lying down in bed." In May the prominence of the right costal cartilages began greatly to increase, with tenderness and impairment of the respiratory murmur of the right side; the cardiac sounds were unaltered to the last. Pain and dyspnoea were never continuous till within a few days of his death.

In the end of July he had alarming paroxysms of dyspnoea, subsequent to which he rested best in an easy chair, and he preferred to stoop forwards, leaning his elbows on his knees. During the last month his voice was occasionally changed; he had a sharp ringing cough, and, latterly, occasional fits of dysphagia. A few days before his death swelling of his face occurred; his feet became cedematous, and dyspnoea continuous. On the 27th August he suddenly exclaimed he was dying. His face was intensely purple, but became pale; his tongue, also, was very pale; his breathing laboured, and his pulse full. In half an hour he sank. There was no external hæmorrhage. Immediately after death the surface became extremely blanched. Of the treatment, Dr Turnbull says, "Anodynes administered internally never gave any relief. The greatest degree of relief was from iodine, atropine, or chloroform, applied locally. Latterly, the only comfort he obtained was from leeching or the free application of chloroform."

The value of this case depends in a great degree upon the opportunity of observing the symptoms before prominence or impulse of the aneurism existed. The difficulty, in the first instance, was to determine whether the apparently pleuro-pneumonic state of the upper part of the right lung was primary or secondary; and having decided that it was secondary, what evidence was there that the dull percussion over the sternum resulted from aneurism, and not

from a new growth in the mediastinum. The former of these questions was decided, not without hesitation, and only after apparent improvement in the state of the lung, with, at the same time, increasing dulness of percussion over the mediastinum. To dispose of the second question, we find the following considerations:—The comparatively unbroken state of the patient's general health; his muscular and energetic habit; the history of his pain, alternately acute and intermitting completely, with a tendency to fix itself in one situation, where tenderness soon occurred; comparative freedom from cough and expectoration; the existence of pleuro-pneumonia in an unusual situation; dulness of percussion over the supposed seat of tumour, and increased distinctness of the cardiac sounds.

These symptoms leave no doubt as to the presence of a tumour. That it was an aneurism could only be conjectured; but, on the ground chiefly of the unbroken health, and the history of the pain, it became what Dr Latham calls a "sober conjecture;" and too soon it was verified. Of the other symptoms in this case I shall have occasion to write in the sequel; of his pain, at page 414; of pulmonary inflammation, at page 419; and of the stooping attitude, at page 416. Of the mode of death, too, I shall have a word to say in connexion with Cases IV. and X.

The absence of direct stethoscopic signs is frequent, and may be the source of most perplexing difficulty. In such circumstances, as in this case, sharpness and increased distinctness of the heart-sounds, away from the region of the heart, acquire an importance we cannot afford to overlook. It was not until my second examination of the case that this sign duly impressed me, when it was accompanied by circumscribed dulness of percussion. Isolated, this sign would be valueless; but with other grounds to suspect the presence of aneurism it has a value. At the same time, it must be borne in mind that in cases of aneurism one or both sounds may be less distinct than natural.

Before recording the immediately succeeding cases, a few preliminary remarks on aneurismal second sounds are here necessary; as, however, I desire to limit my remarks to a purely clinical illustration of this subject, I shall not discuss their mechanism. The sounds heard over substernal aneurisms are of two kinds—murmuring or pure, and these may be systolic or diastolic: I refer, of course, to the systole and diastole of the heart.

The aneurismal diastolic or second sounds have been known for long to possess a much more precise diagnostic value than systolic sounds do; and their diagnostic value in substernal aneurisms makes it the more remarkable that they are not met with in abdominal and in external aneurisms. This renders it very probable that the phenomena of the second sound in substernal aneurisms depend more or less upon communication from the heart; as occurs in such an experiment as the following:—Let an india-

rubber bag, with a tube attached, be distended with water, by means of an elastic forcing bag having a valve in the nozzle which communicates with the tube. The sudden expansion of the forcing bag (its diastole) is followed by the audible flap of its valve; but when the india-rubber bag is fully distended the sound produced at the valve is now heard in the distant bag, intensified and having a cavernous tone, from the diffusion of the sonorous wave in the globular bag of fluid, though at a distance of several feet from the valve of the forcing bag.

As a general rule, the *character* of an endocardial or arterial murmur has no diagnostic value,—it may be harsh or soft, musical or blowing. It is otherwise, however, with the cardiac second sound, which is liable to changes in its intensity and in its timbre. Increased loudness or sharpness of the second sound, in the aorta or in the pulmonary artery, accompanies a variety of conditions of the heart and of its action, and these possess more or less diagnostic value; but the timbre of the second sound is apt to acquire a peculiar intensified, ringing or metallic, quality of great diagnostic value. The difficulty of describing the quality of a sound has led to a vast number of terms being employed to designate this one. In clinical teaching I was accustomed to style it “intensified, with a hollow metallic ring or boom.” Dr Stokes terms it “ringing second sound.” Dr Walshe “twanging” or “pumping.” The most recent reference to it is by Dr J. W. Begbie,¹ who adopts the name of “accentuated second sound.” In the year 1836, Dr Henderson² demonstrated the importance of this altered timbre of the second sound, and compared it to the closing of a pump-valve. Dr Henderson’s patient was a man about 50. He presented dull percussion on the left front, as low as the sixth rib, with well-marked impulse. “After this slow impulse in these parts had terminated, and while the heave of the chest produced by it was subsiding, a remarkably clear and loud sound was audible, bearing a very striking resemblance to the sudden shutting of a pump-valve in the immediate vicinity of the ear. The sound was of nearly equal intensity at all points where the impulse existed.” In this case, the heart was of natural size. A large aneurism occupied the space from the left clavicle to the fifth rib in front, and it extended to the spine. The aneurism commenced an inch from the aortic valves, and involved the left wall of the arch as far as the origin of the left subclavian artery. The sac contained a maze of laminated clots, with a dirty grumous-looking fluid intervening.

The “equal intensity” of the sound in this case probably arose from the size of the sac, its diffused proximity to the surface, and possibly the extent of its communication with the aorta. The case was admirably suited for unfolding the value of this state of the

¹ Edinburgh Medical Journal. No. 96. June 1863.

² Edinburgh Medical and Surgical Journal, vol. 45.

second sound, the peculiar and distinctive character of which does not depend upon its *accent* so much as upon its *timbre*. In its higher degrees it has a metallic twang, but sounds as if produced in or communicated to a cavity full of fluid, and the facts substantiate this resemblance. I would therefore suggest, as a fitting description of it, that it be termed the cavernous second sound, or cavernous intensified second sound. Booming or ringing expresses the quality of the sound defectively, as the flap of the valves terminates the sound abruptly, and prevents the prolonged vibration implied by these terms.

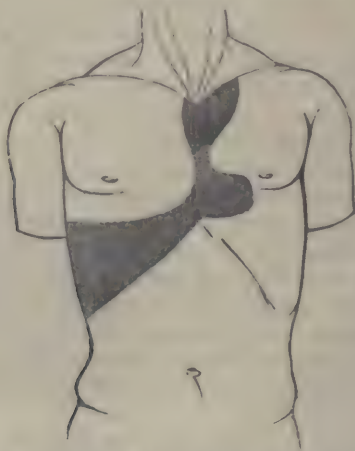
The immediately following cases, No. IV. to No. VII., illustrate some of the conditions in which this state of the second sound is observed.

CASE IV.—*Saccular Aneurism of the Arch of the Aorta; Sac large and empty; Cavernous intensified Second Sound; Cardiac Sounds at the base of Heart, normal; Death by Hemorrhage into the Cavity of the Pleura.*

Georgina Macpherson, *et.* 34, house-servant, admitted under my care in the Infirmary on account of trivial symptoms with amenorrhœa, an ulcer of the leg, *etc.* In the end of October 1851, the following report was taken:—She complained of fixed and lancinating pain in the upper part of the left front of the chest, extending to the shoulders and left upper extremity. She had difficulty in resting on the left side, and her breathing was very slightly impeded.

History.—She had experienced pain for some months, and she had coughed without expectoration. She had not suffered any acute attack, and stated that her previous health had been good. She had derived temporary benefit from opiates.

Figure 1.¹

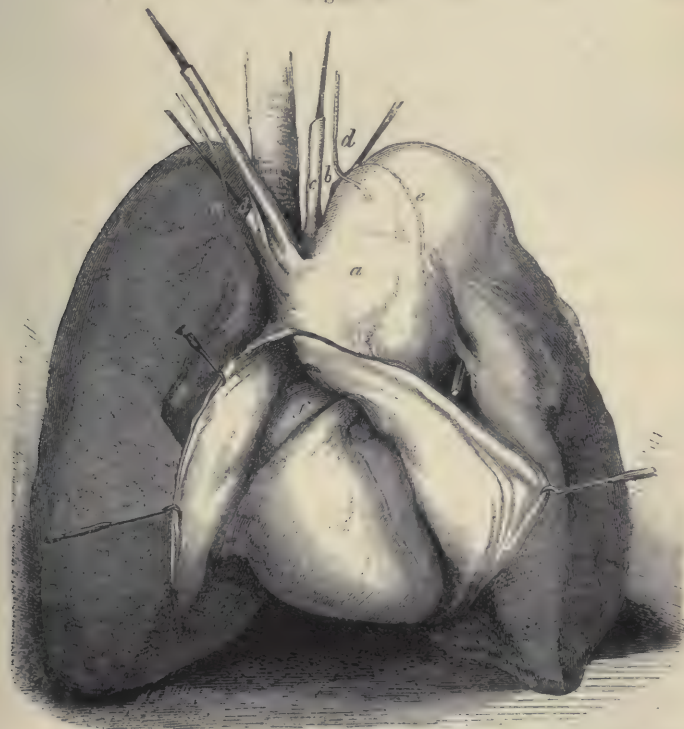


Physical Signs.—Coverings of chest were spare, and there was slight prominence of the left subclavian region, and diffused visible pulsation, with sense

¹ Figure 1 shows the extent and situation of dull percussion over the aneurismal tumour in the left subclavian region, and over the heart and liver. The paler shading on the middle part of the sternum represents the more resonant tone of percussion where the adherent lung intervened between the heart and the tumour.

of impulse more marked than that of the heart. Pulse was wanting in left wrist. There was acute tenderness on percussion of the left front, and there was dullness on the inner half of the left subclavian region, and upon the upper two inches of the sternum. The præcordial space dull on percussion, commenced in the fourth intercostal space. The hepatic dullness was as usual. The precise site of the apex cordis could not be determined. In the fifth left intercostal space the heart sounds were faint, the second being somewhat more distinct, with an occasional reduplication. At the fourth intercostal space, close to the sternum, the second sound was distinct, clear, and not intensified. As examination was made upwards, the second sound became more and more intense, and in the centre of the subclavian space acquired its greatest loudness with cavernous metallic boom; and the first sound acquired a harsh prolongation. Behind, there was dull percussion on the left summit,—feeble respiration and suppressed vocal vibration.

Subsequent Progress.—During examination, and at other times, she complained much of pain and restraint in lying supine. Her cough was only occasional and slightly husky. She gradually lost strength and became almost incapable

Figure 2.¹

of moving from acute lancinating pain in the upper part of the left side of chest and shoulder. She lost flesh and became slightly sallow. About the end of

¹ Figure 2.—*a*, Aneurismal tumour. *b*, Left subclavian artery, its cut extremity concealed and compressed behind the tumour, with a director in the orifice. *c*, Left carotid artery. *d, d*, Pneumogastric nerves, the left lost in the sac wall. *e, e*, Phrenic nerves. *f*, Aorta at its commencement, within the pericardium.

December she became more feeble and languid than previously, and on the morning of the 28th she became suddenly faint. She rallied, but died in the course of an hour or two.

Post-mortem Examination disclosed a large clot of blood in the left pleura. There were firm cellular adhesions of the upper lobe of the lung posteriorly. The heart and its valves were healthy, except glistening white spots on the pericardial surface. The upper part of the left lung was displaced by an aneurismal tumour considerably larger than the fist; and the compressed upper lobe of the lung was closely adherent to the outer and back surface of the tumour. Rupture of the sac by a very small slit, had taken place at the outer and lower part of the tumour, where screened by adherent lung. On the left side, the par vagum (fig. 2, *d*) was found incorporated with the wall of the sac, at its upper part, so that it could scarcely be traced; it was displaced outwards, and was lost where the lung adhered to the sac. The recurrent nerve of this side was found in the first part of its upward course, in firm contact with the posterior wall of the aneurismal sac. Tracing it downwards, it was found to emerge from the sac-wall, but could not be traced to its connexion with the vagus nerve. At the upper part, the phrenic nerve (fig. 2, *c*) on this side was found entering the sac wall, in which its fibres could be traced imperfectly; it emerged at the lower and anterior part of the sac, whence it pursued its course along the pericardium. The left subclavian artery (fig. 2, *b*) was compressed behind and within the upper part of the tumour. On laying open the sac of the aneurism, it was found nearly empty, forming one uniform sac, lined throughout by an unorganized fibrinous pellicle, and communicating with the artery by a large orifice comprehending the anterior wall of nearly the whole transverse arch, and about two-thirds of the circumference of the vessel; thus including the openings of the innominate and left carotid arteries. The aperture of the left subclavian artery was excluded from the sac by the projecting marginal fold of the orifice.

I have not met with any case in which the cavernous character of the second sound over the tumour was more marked, and in which the sounds at the base of the heart preserved their natural quality. The same condition of the second sound was very marked in the following case.

CASE V.—*Saccular Aneurism of the Arch of the Aorta at its termination; Cavernous intensified Second Sound over Tumour—at the Heart, both sounds normal; Death from Effects of Fatigue.*

James Henderson, æt. 30, flax-spinner; admitted under my care in the Royal Infirmary, 12th June 1845. A well-developed man, suffering from cough with expectoration, dyspnoea, and hoarseness, accompanied by pain in the left upper front of chest, extending to left shoulder.

Physical Signs.—There was slight prominence of left front, and an obscure impulse in this subclavian space, distinct from the impulse of the heart. In the same situation, there was dull percussion with tenderness. The præcordial dull space was of the natural extent. The cardiac sounds were normal in the region of the heart; but upwards, in the subclavian space, the first sound was superseded by a sharp bellows murmur; the second sound was intensified and hollow-toned, presenting the characteristic metallic cavernous ring.

The left internal jugular vein was permanently distended; the left radial pulse was small; and the respiratory murmur was impaired in the left lung.

History.—He stated that the existing symptoms had arisen within ten weeks, and that his illness originated in the effects of exposure to cold, with rigors, headache, oppression of the chest, cough, with expectoration and hoarseness. He had been relieved by active treatment, but the hoarseness had undergone no improvement.

Progress, etc.—He left the hospital on the 22d June, contrary to advice, and travelled to the country a distance of ten miles. Before he recovered from the fatigue of the journey, he became affected with increase of the dyspnœa, and pain of the upper and left side of the chest. He died exhausted after three days' distress.

Post-mortem Examination was performed in the country. The only lesion of importance was an aneurism of the arch of the aorta. The tumour was large and irregular; it occupied the left subclavian space, and extended upwards behind the clavicle, and in front of the great vessels of the neck. The vagus nerve of this side was involved. The trachea was compressed, and showed a mulberry-like bulging in its interior. The circumjacent tissues were infiltrated with a dense exudation. The sac was partially loculated, some of the loculi contained dense coagula, but the general cavity was chiefly empty; and it communicated with the aorta by a large irregular orifice in the anterior wall of the arch before it descends.

The imperfections in the report of the preceding case do not affect its bearing on the diagnostic value, and the variations of the cavernous change of the second sound. In the case which follows, the situation where the altered character of the second sound existed declared the presence of dilatation of the aorta, in addition to aneurism of the innominate artery.

CASE VI.—*Aneurism of the A. Innominate, with Dilatation of the Aorta; Cavernous Change of the Second Sound most marked over the Ascending Aorta.*

Mrs Scott, æt. 69, consulted me on the 22d Dec. 1849, on account of increasing swelling of the belly, and slight breathlessness. She had no cough nor distress otherwise; but she pointed my attention to a fulness at the lower part of her neck. Pulse was 72, of good strength.

Physical Signs.—The tumour occupied the sternal notch and the space above the right clavicle; it was diffused, of irregular form, and pulsating; its greatest length was two inches, transversely. Percussion was dull on the right side of the sternum as low as the second intercostal space, and two and a-half inches to the right. The upper margin of the præcordial dullness was on the third rib. The cardiac second sound was intensified, especially on the tumour and on the right margin of the sternum above where the second costal cartilage articulates, and had a hollow cavernous timbre. No irregularity of pulse, nor of respiration.

History and Progress.—Her disturbed health had existed for some months, and she had been relieved by laxative medicine. She could not tell when the tumour appeared; it had existed for years. I saw her occasionally for a year afterwards, when she left Edinburgh.

These cases exemplify the cavernous intensified second sound in a very instructive manner. In all of them the diagnosis was a matter of no difficulty, and on that account they are the better fitted for our present purpose. In Cases IV. and V., the altered timbre of the second sound had its greatest intensity over the aneurismal tumour; and in No. VI., the cavernous timbre of the second sound was appreciable over the aneurism of the innominate artery—a condition I have met with in other cases, as in No. IX. of this series—but from the greater distinctness of the sign in the second right intercostal space, where the aorta lies close to the surface, conjoined

as it was with extended dulness of percussion, I concluded that dilatation of the ascending aorta existed along with the aneurism. In such circumstances, I do not think the greater nearness to the aortic valves a satisfactory explanation of the increased loudness of the second sound, which became less intense at the base of the heart; its more cavernous character at the second intercostal space is to be explained rather by the fact of the dilated artery coming into more extended contact with the parieties in that situation. The aortic valves were adequate to their office in all of these cases; and the necessity of this practically affords a solution of the vexed question, whether the cavernous tone is a cardiac or aneurismal second sound. The practical solution of the question, as a clinical fact, appears to be, that this condition of the second sound cannot arise without the sonorous flap of the sigmoid valves, and the sonorous vibration or undulation, reaching the cavity of the aneurism, is multiplied and intensified, in the manner observed, in a distended elastic bag, connected with a valve by a continuous tube, even of considerable length. The important fact is, that we are to look for this altered state of the second sound over the aneurism, not over the sigmoid valves. This was conspicuous in Case IV., and was true in all; although in many cases, and possibly for a variety of reasons, the cavernous second sound may be heard as loud at the valves as at the seat of disease. Moreover, it is not incompatible for this cavernous tone to exist in conjunction with diastolic murmur from aortic regurgitation, as I shall take occasion to explain in noticing Case No. VIII.

This state of the second sound not unfrequently accompanies cases of hypertrophy of the heart. To distinguish such cases does at times involve real difficulty, which, however, may usually be surmounted by attention to the collateral signs, especially the extent of percussion dulness over the heart and aorta. At the same time, so far as I have observed, in cases of hypertrophy, the altered second sound does not acquire the cavernous timbre in its highest degree—it is more apt to assimilate to the normal flatness in the tone of the second sound, more or less intensified. Besides, in hypertrophy, as in peripheral aneurism of the ascending aorta, the cavernous sound exists at the seat of the valves; while it may, or may not, in cases of saccular aneurism.

Case No. IV., and others similar, impressed me strongly that a fluid state of the contents of the sac is necessary for the production of the cavernous timbre; but in several cases of the present series it was well marked, although the sacs were in part occupied by coagula. In the case on which Dr Henderson founded his original observation, we are told that the sac contained a "maze of clots." It appears, then, that entire fluidity of the contents is not essential to the production of the cavernous tone, and its occurrence in cases of hypertrophy of the heart, and its modifications in different aneurisms, confirm the opinion that the aneurismal and arterial

walls, as well as their contents and the force of the blood current, are concerned in the mechanism of the sound.

Of diastolic bellows murmur in aneurisms I have little to say; but the negative statement I have to make is not without value. In the course of a now lengthened experience I have not met with any well-marked instance of diastolic bellows sound originating in, and audible only over, a substernal aneurism. This is enough to prove its rarity; but still, its existence would afford conclusive evidence of the presence of a saccular aneurism. The two succeeding cases illustrate the difficulties in discriminating aneurismal diastolic murmurs. No. VII. is of interest in other respects, especially as regards the advanced effects of the disease in protracted cases. The narrative has been condensed from a minute and necessarily very lengthened record of the case.

CASE VII.—Saccular Aneurism of the Arch of the Aorta, Dilatation of the Aorta; External Tumour, with Rupture; Diastolic Murmur; Cavernous Second Sound; Death from Exhaustion.

Anne Stewart, æt. 53, hawker, was in hospital on various occasions under my care, between July 1850 and February 1853. An intemperate person, and bloated. Subject to dyspnoea and palpitation. A large pulsating, painful tumour occupied the upper portion of the sternum and contiguous parts.

Physical Signs.—These necessarily underwent variation during so long a period. The space dull on percussion over the tumour measured above five inches in diameter. Præcordial dull percussion was displaced downwards, and was extended. At the level of the fourth costal cartilages, besides the systolic impulse, there was perceptible a sharp impulse as of the flap of the sigmoid valves, at times accompanied by a thrill. The cardiac sounds varied from time to time. At the apex, in the sixth intercostal space, the first sound was muffled,—the second was occasionally accompanied by a diastolic bellows murmur. At the level of the third and fourth cartilages, the cardiac first sound always presented a muffled, murmurish character; and the second, a cavernous intensified timbre, audible only in a limited space, and increased by excitement. On the tumour there was perceptible to the ear only the shock of the impulse. Over the carotid arteries a hoarse systolic murmur existed.

History and Progress.—She had an attack of acute rheumatism about seven years previously, in the course of which she was cupped in the region of the heart. The tumour appeared not long after.

Gradual increase of the tumour took place, accompanied occasionally by acute pain locally, and interseapular aching. On several occasions, sudden increase occurred, with purple colouration of the tumour and acute tenderness.

In the end of 1850, slight dysphagia occurred, with deep-seated pain, and followed by impeded breathing and ringing cough for about three months.

In the beginning of 1853, with one of the sudden attacks, rupture of the tumour occurred, and slight hæmorrhage, which was easily restrained, and the wound cicatrized. Her head had become immovable without the assistance of her hands. Soon after, sudden and large expansion of the tumour occurred, with diffused purple coloration, and sloughing of the cicatrix. She had acute pain, with febrile symptoms, which were relieved by bleeding from the arm, and by leeches. She sank till 6th February, when she died.

Post-mortem Examination.—The external tumour occupied the lower part of the neck, and extended as low as the fifth rib; there was a slough on its surface. The aorta was dilated and calcareous. The orifice of the aneurism was about an inch in diameter at the arch. In the sac was a dense coagulum,

having a small cavity, and weighing 16 oz. The coagulum was partially separated at the orifice of the aneurism, and a thick, dark-coloured clot of blood lay between it and the sac-wall. Posteriorly a sacculus existed, with dense surrounding tissue the size of a filbert, and in contact with the trachea. The upper two-thirds of the sternum were wanting. Both the clavicles rested on the coagulum, and had their periosteum separated from their sternal ends, with recently effused blood interposed, continuous with the soft clot that lined the sac. The heart was hypertrophied. No lesion of the valves. The vagus and recurrent nerves were free from the tumour. Both lungs were slightly emphysematous.

With reference to the want of agreement between the reported diastolic murmur in this case, and the apparently normal state of the sigmoid valves, I can offer no explanation, nor shall I argue as to its sigmoid or aneurismal seat. In evidence of the care taken to determine its nature, I quote the following notes from the record of the case, dated 8th January 1852:—"At the apex cordis the second sound is converted into a prolonged bellows murmur. Over a spot on the sternum, on the level of the third intercostal spaces, and corresponding to the lower boundary of the morbid dullness of percussion, both heart sounds are free of murmur." Upwards, on the tumour, no bellows sound existed. On the 12th July 1850, it was noted,—“The murmur reported with the second sound at the apex is doubtful.”

In the existing state of our knowledge, the supposition is more than justifiable that this diastolic murmur, appearing and disappearing as it did, originated in the aneurismal orifice; but if the fibrinous mass contained in the sac prevented it being heard on the tumour, it is difficult to explain how it could reach the apex cordis.

Further, the aneurismal diastolic murmur is described by authors as being peculiarly a faint murmur, and therefore liable to be overlooked. And there is reason to suspect that the murmur of aortic regurgitation in such cases as the following, might be confounded with it:—

CASE VIII.—Saccular Aneurism of the Ascending Aorta; Second Cardiac Sound cavernous, with Bellows Murmur; Insufficiency of the Aortic Valves; Hypertrophy of the Heart.

William Scott, æt. 53, stonemason, admitted into the Royal Infirmary under my care. A man of robust frame, but spare, and suffering from dyspnoea and palpitation.

History.—He had been under treatment for some weeks previously to admission, with relief to severe bronchitis. He had been unfit for work for a month, but had experienced occasional distress for twelve months.

Physical Signs.—Coverings of the chest spare, with præcordial fulness and diffused cardiac pulsation; that of the apex was perceptible in the fifth space to the left of the usual situation. In the second right intercostal space, close to the sternum, there was very slight visible pulsation, synchronous with the cardiac beat. There was permanent fulness of the external jugular vein, and visible irregular pulsation of the internal. Radial pulses equal, quick in action, not decidedly diastolic, visible. Præcordial space dull on percussion, extended vertically from the third left cartilage five inches downwards, and transversely from a line an inch left of the mesial line, four inches leftwards. There was

dull percussion on the upper part of the sternum and the contiguous parts of the third and fourth right intercostal spaces. Percussion also was dull under the right clavicle, and behind from the middle of the right interscapular space upwards.

The heart sounds at the apex cordis were free of murmur. The first was muffled; the second was intensified and hollow-toned. Over the ventricles, and at the base, the second sound acquired more of the developed hollow and metallic tone, but its termination was accompanied by a soft prolonged bellows murmur. This bellows murmur had its greatest intensity in the second right intercostal space close to the sternum; it was inaudible on the upper bone of the sternum. The intensified cavernous second sound, on the other hand, was well heard over the front, and was intense in a limited place on the sternum and contiguous second right intercostal space.

The murmur of respiration was distinct and pure in both subclavian regions. Behind, where percussion was dull, in the upper part of the right lung the expiratory murmur was prolonged and tubular. The altered second sound was also distinctly audible, though faint, and the thrill of the voice was increased.

He left the hospital and was lost sight of.

The conjunction of a well-marked second sound, with a *terminating* murmur of aortic regurgitation, is not unfrequent; and here it occurs in circumstances in which, if care were not taken to guard against the mistake, the murmur might appear to have its source away from the valves, and lead to the supposition of diastolic aneurismal murmur. This case was referred to at page 410, in illustration of the statement that a degree of insufficiency of the aortic valves may exist along with the intensified cavernous second sound in cases of aneurism.

The immediately preceding cases illustrate what is so commonly and so painfully witnessed in practice—that this disease has made hopeless progress before attention is fixed upon it. This was most impressively shown in our fourth case. The patient, a young woman, applied for the relief of symptoms apparently so trivial and disconnected with the idea of aneurism, that no examination of her chest was made for several weeks. At length, in consequence of neuralgia of the shoulder, and sense of discomfort on first lying down, her chest was examined, and the physical signs afforded unmistakable evidence of the large aneurismal tumour represented at page 407.

In contrast with this, and other cases of this series, especially No. VI., we see in No. III. the attention of the patient attracted by his local and other symptoms ten months before the physical signs of the disease were very decided. Perhaps the only considerations which cast any light on the probable cause of these differences are connected with the constitutional habit of the patients, and the situation of the tumour; although an invariable rule cannot be laid down, the former is worthy of attention. Patients, such as Dr Turnbull's (No. III.), of muscular and vigorous frame, and sound general health, will often be found to suffer sooner and more acutely. Again, in cases such as No. IV., the tumour, from the nature of the surrounding parts, may expand

to a much greater extent, and perhaps rapidly, without the same degree of suffering or injury to contiguous organs.

The more I see of this disease, the more I am led to attach a high value to pain as a symptom. General statements regarding the value of this or any other symptom of substernal aneurism are very difficult, and very apt to leave on the mind a felt sense of practical defect. Authors have given systematic statements of the character, seat, and connexions of pain as a symptom; but, probably, its worth will be better estimated by tracing it in the narratives of individual cases. We have already seen how valueless may be the most reliable sign of substernal aneurism, if it be isolated; and this is pre-eminently true of pain. Conjoined, however, with the evidence of an obstructed bronchus, or with circumscribed dulness of percussion, pain may afford all but conclusive evidence. Moreover, the frequent absence of pain proves nothing against its value as a symptom. No doubt, Dr Law,¹ in his valuable cases and observations, puts the matter too strongly when he says, pain is "a pathognomonic sign;" but, he says well and truly, that "it is important to know that it does sometimes exist when we most stand in need of it to guide us."

The diagnostic value of pain in these cases depends less upon its character and seat, than upon the circumstances in which it occurs. It has been mentioned at page 404 how important an influence the pains had in the diagnosis of case No. III., chiefly in consequence of the attendant dulness of percussion and the general condition of the patient. The pain in that case did possess a marked peculiarity in its history as well as in its seat. The length of time during which it had recurred, with long-continued and complete intermissions, and the sudden severity of its attacks latterly. His early and acute suffering seems to illustrate what some have insisted on,—the more painful character of saccular aneurisms of the ascending aorta. The completeness of the intermissions in the case was observed of the other symptoms as well as of the pain. After the result of the case, Dr Turnbull, writes:—"From first to last I have been much struck with the variableness of the symptoms." The patient also complained expressly of the twofold character of his pain, similar to what Dr Law dwells upon in connexion with aneurism of the abdominal aorta,—fixing itself in the seat of disease, and at the same time lancinating elsewhere.

The history of the symptoms in case No. IV. contrasted very strikingly with what has just been said of Case III. In the former, so far as the patient's statements can be trusted, she appears not to have suffered till the last four months; probably because not till then did the tumour attain a size which, by stretching, or

¹ Dublin Med. Journ., 1842. Vol. xxi.

otherwise affecting the phrenic nerve, could act upon the branches of the cervical plexus. In commenting on the next case, I shall draw attention to the correlation of substernal aneurisms and the phrenic nerve; but, connected with the pain and neuralgia, I wish to point to the excessive stretching and displacement of the left phrenic nerve in case No. IV.; and connected with that, the intense anguish in the seat of the tumour, which latterly interfered with all movement, and which was accompanied by severe neuralgia of the shoulder. This was conspicuous, also, in case No. V., where, there is reason to think, the left phrenic nerve was interfered with.

CASE IX.—Bilocular Aneurism of A. Innominata; Compression of Trachea; Obstructed Expiration; Cavernous Second Sound; Vomiting.

Feb. 24, 1853.—An artist, æt. 40, having the general appearance of good health, but a constrained position of the head, bent forwards. His breathing was noticed to be noisy, his voice hoarse, and he had a husky ringing cough. He complained of embarrassed breathing, acute darting pains in the right shoulder and right side of the neck, and occasional sudden vomiting of ingesta. There existed a diffused, firm, pulsating tumour at the lower part of the throat, slightly to the right side.

History.—The altered tone of voice and cough had existed for three months. His health had been uniformly good till neuralgia of both shoulders became distressing, eight months previously.

Physical Signs.—The tumour at the root of the neck occupied a space which was irregularly triangular, and had for its base the inner half of the right clavicle; its apex on the right side of the cricoid cartilage; and the swelling extended in front of the trachea. There was distention of the veins of the neck, and visible pulsation of the great vessels. The left radial pulse was small as compared with the right; but of the carotids, the right was the less distinct. Percussion was dull on the upper portion of the sternum and contiguous part of the right subclavian space. In the region of the heart, dulness commenced on the third rib. The sounds of the heart were natural, except in the vicinity of the sternal notch, where the second had a distant but decidedly cavernous intensified tone or timbre. Over the tumour there was perceived only a sound or sense of impulse. Heart sounds obscure. The action of the heart intermitted occasionally. The murmur of respiration was nowhere disturbed appreciably.

Subsequent Progress.—Little change occurred during the next ten days; the dyspnoea then became aggravated and more or less permanent, with painful paroxysmal attacks. He was slightly relieved by leeching. The constrained bowed position of the neck increased; he usually sat up stooping.

Cough, in violent paroxysms, became more frequent, with eight or twelve ounces of glairy mucous expectoration daily. The obstruction of respiration affected both expiration and inspiration more than previously. He experienced but slight and temporary relief from the remedies used, and sank rapidly in about three weeks.

Post-mortem Examination.—The general volume of flesh was considerable.

The tumour consisted of an aneurism of the arteria innominata. It was the size of an egg, and of irregular shape; elongated vertically, and divided in the same direction into two lobes by a deep sulcus, the larger being to the right and in front of the trachea; the smaller dipped deep to the left of the trachea, which thus was closely invested by the tumour. The par vagum and the recurrent nerves of the right side were free from the tumour. On the left side the par vagum anteriorly, the recurrent posteriorly, were in contact with the

left lobe of the tumour; some fibres of the par vagum being incorporated with the sac. The carotid artery, but in a greater degree the subclavian of this side, were pressed upon by the deep and firmer portions of the tumour.

The interior of the aorta showed extensive atheromatous deposit, and the arch was dilated chiefly by two shallow pouches. The orifice of the arteria innominata was irregular in form, but little enlarged. The aneurism had its origin in the anterior wall of the artery, leaving a free communication for the current from the aorta to the carotid and subclavian arteries. The sac was bilocular, corresponding to the right and left lobes of the tumour, as seen externally. The septum was complete except below, where its crescentic border overhung the orifice of the artery. The right or principal saccule was nearly filled by a dense lamellar and adherent clot. The saccule on the left was nearly empty; its cavity was irregular; and some small dense decolorized coagula existed in its sinuities, giving hardness to the posterior part.

On laying open the trachea from behind, its rings were found bulging inwards from the pressure of the firm tumour; and several points of minute ulceration of this part of the mucous membrane existed.

The heart was healthy. The bronchial tubes contained much mucous, and the mucous membrane was injected.

In several respects this was a remarkable case. The stethoscopic phenomena confirmed the proofs already given, that in saccular aneurisms the cavernous intensified second sound is to be looked for over the sac, and not at the base of the heart.

I have not met with the description of any case in which the bilocular division of the aneurism was so complete; and this singular limitation of the aneurismal expansion to the anterior wall of the artery, leaving a free passage for the blood from the aorta to the carotid and subclavian arteries, would interfere with one of the most available means of distinguishing aneurism of the innominate artery from that of the aorta. I refer to the diminished pulsation of the tumour by compressing the carotid and subclavian arteries. This was not tried in the case; but I cannot doubt that in such an anterior situation of the sac, in a degree disconnected with the current from the aorta to the great vessels beyond, the pulsation of the sac would not have been diminished to the degree it would if the current of blood had passed more directly by the sac to the arteries.

This case is the only one I have met with in which frequent and sudden fits of vomiting, chiefly of ingesta, occurred. In connexion with this, as well as the neuralgia of the shoulders and neck, I regret that the relation of the phrenic nerves to the tumour has not been recorded. I had overlooked this in making the *post-mortem* examination, but from the situation of the lobes of the tumour on each side of the trachea, it is probable that both phrenic nerves were implicated. I make this statement with the view of directing attention to the relation of substernal aneurisms to the phrenic nerves. This case does not admit of any reasonings on the subject, but it justifies the suggestion that irritation of both phrenic nerves might result in spasmodic fits of vomiting. In cases No. IV. and No. V. we have the interference of the tumour with one of the phrenic nerves without vomiting; but, to the encroachment on that nerve,

the neuralgia of the left shoulder may be ascribed. I do not remember to have seen this correlation of the phrenic nerves with aneurisms referred to; and it appears well worthy of the attention of those who have opportunities of carefully recording the clinical and *post-mortem* conditions of such cases.

The pressure of the trachea was very remarkable in this case, from the manner in which the aneurism had expanded itself round the front of the air tube. It was in consequence of this that the patient presented the very expressive stooping position of the neck, which is also referred to in case No. I. Dr Turnbull describes a similar attitude in his patient, Case III., in the following words. "he was seldom able to lie down in bed, and latterly he was easiest in an easy chair, leaning forwards with his elbows resting on his knees."

With reference to the performance of tracheotomy for the relief of obstructed breathing in cases of substernal aneurism, I have not met with any case in which it was demanded. It cannot be denied that in possible circumstances a few hours, possibly days, might be added to the existence of a patient; but this case, and many similar, in which there is an encroachment upon the calibre of the trachea, suggest a very weighty consideration in connexion with the question. Probably, in all such cases, the operation is inadmissible; and in this case, as well as in No. I., I wish to point to the obstructed expiration which accompanied the difficult inspiration, and was permanent—not paroxysmal. Now, in cases of aneurism, and in some other diseases, this noisy and obstructed expiration is a simple and conclusive evidence of organic or physical encroachment on the calibre of the trachea, which, in cases of aneurism, is conclusive against the performance of tracheotomy. Of course, in laryngeal obstruction from spasm merely, in which inspiration alone is affected, the conclusion may be otherwise.

Copious expectoration of glairy mucus is not a usual accompaniment of substernal aneurism. I have met with it occasionally in connexion with pressure on the trachea.

The narratives of the two following cases present the disease in a form that is often met with; and yet such cases are not unlikely to mislead.

CASE X.—*Masked Saccular Aneurism of the Arch of the Aorta; Chronic Pleuro-Pneumonia; Death by Hæmorrhage into the Air Tubes.*

James Carr, æt. 40, admitted into hospital on the 24th January 1845; a delicate-looking man of spare habit of body; he had a husky wheezing cough with hoarseness, and he complained of pain of the left side of the chest, with difficulty of resting on that side, owing to increase of cough. Pulse 85, soft. There was slight ulceration of the left tonsil.

History.—He had not suffered from any acute attack. The existing symptoms had been developed gradually during fourteen weeks. Pain did not distress him except from coughing. He admitted occasional sweating in sleep.

Physical Signs.—His chest was small. Percussion was dull throughout the left side, with respiratory silence; on forced inspiration faint wheezing sounds were audible. The vocal vibrations were suppressed; no effect from change of posture. The heart appeared to be slightly displaced downwards, and to the right; its sounds were normal, but unusually distinct in the left subclavian space.

Progress.—Little or no improvement occurred in the symptoms; with the exception of blisters to the left side of the chest, the treatment was palliative. On the 1st March, profuse fatal hæmorrhage from the air passages occurred suddenly.

Post-mortem Examination.—The volume of flesh was small. The left lung was adherent, except at the lower part, where above a pint of straw-coloured serum was contained in the pleura. This lung was contracted and dense throughout, with mingled lobular masses of grey and red, and large masses of black consolidation. The heart was normal, and externally the aorta appeared to be so.

The inner surface of the aorta presented some atheromatous deposit; and in the lesser curvature of the arch, just before it descends, there existed an angular aperture half an inch in diameter, communicating with the sac of an aneurism about the size of an egg. It occupied the space of the arch and compressed the left bronchus, in the interior of which there was the bulging tumour of the aneurism, with a dark, sloughy, ulcerated surface, which was perforated.

The left carotid artery and the A. innominata originated together from the aorta; the carotid separating immediately, the innominata crossed the trachea to the left, and divided into its branches.

CASE XI.—Masked Aneurism of the Arch of the Aorta; Ulceration of Tonsil, etc.; Death after Gradual Exhaustion.

18th November 1858.—A country labourer, æt. 40, a patient of Dr ———, who requested me to examine the case. He was pale, feeble, and emaciated; and he had a husky ringing cough, which, at times, occurred in paroxysms with expectoration of glairy mucus. The breathing was slightly embarrassed with noisy inspiration; expiration free. No pain, but distress of the chest, with sense of oppression.

Physical Signs.—The impulse of the heart was obscure, but when the patient leaned forward the apex was felt to beat in the sixth intercostal space. The cardiac dulness was extended; and circumscribed dulness of percussion existed on the sternum, at the level of second and third ribs. The dull space inclining to the left at its lower part, measured about one inch and a half in the vertical as well as the transverse direction. No impulse could be detected away from the heart. The murmur of respiration was absent throughout the left side of the chest, as also was the vocal fremitus. The radial pulses were of equal size.

History.—For six or eight months he had been liable to alarming paroxysms of dyspnoea, and to cough as described above. He had suffered from ulcerated sore throat.

The subsequent history of the case was that of progressive decline, and he died exhausted on the 2d January 1859. For long he had been free of the paroxysms of cough and dyspnoea, and he suffered comparatively little at the last.

The former of these cases was admitted into hospital, and treated by me as a case of chronic pleurisy; the latter was sent for my opinion by his medical attendant, who felt dissatisfied with the result of advice received from two practitioners, surgeons of acknowledged eminence, that the case being one of chronic laryngitis, was

to be treated by the use of caustic solution locally, and the administration of the iodide of mercury.

In Case X. the difficulty was created in a great measure by the dull percussion which pervaded the left side of the chest, and made it impossible to define the dull space over the tumour; and the husky cough had not the metallic clang. In Case XI., on the other hand, it was manifest from the cough, the dulness of percussion, the vocal and respiratory silence of the left side of the chest, and the displacement of the heart, that a tumour existed deep in the chest. It appeared doubtful whether the tumour was a new growth or an aneurism, and after his death his medical attendant wrote, if the case was one of aneurism, death must have resulted from pressure on the thoracic duct, as he was reduced to a perfect shadow. This is a most probable view of the case—the aneurism occupying a position where it could compress the left bronchus, the pneumogastric nerve, and the thoracic duct.

In such cases the chief practical difficulty will be solved, if it can be determined whether the respiratory obstruction is central or peripheral. In case No. X. this difficulty is exemplified:—Obstruction existed at the surface of the lung as well as at the root, and the evidence of pleuro-pneumonia, though negative, was conclusive. Strict attention, however, to the absence of vocal vibration throughout the left side of the chest would have disclosed the undiscovered central obstruction of the aneurism; because in pleural effusion the thrill of the voice is usually increased on the upper part of the side affected. In Case XI. the state of percussion-dulness made the case less difficult; but the interruption of respiratory sound and vocal thrill on the upper part of the chest was an important guide to the deep-seated disease.

The correlation of substernal aneurism and disease of the lungs and pleura involves interesting but most abstruse problems, which it is impossible to discuss here. I have not met with any case of thoracic aneurism in which tubercular deposit existed in the lungs. Chronic pleuro-pneumonia, or at least a densified contracted state of the lung, is a frequent accompaniment of aneurism, and in some cases it has a useful symptomatic value. The source of the lesion is matter of dispute; and there are great practical difficulties in the way of determining whether the altered state of the lung is the consequence of direct pressure, of obstruction of the nutrient vessels, or of interference with the pulmonic plexus of nerves. These remarks apply chiefly to cases such as No. X.:—in Case III. the state of matters is not strictly analogous. There, I believe, the pleuro-pneumonia, which occurred fifteen months before death, was the result of direct pressure; as indeed it may be in such cases as No. X. The condition of the lungs has not been frequently recorded in the earlier stages of aneurism; but in cases such as No. III., in which inflammation arises in a part of the lung contiguous to the supposed aneurism, and not usually affected primarily, the concur-

rent pulmonary lesion may be accepted as an indication of the aneurism.

The cases recorded in this paper afford illustration of various modes of death in substernal aneurisms. I refer only to the instances of hæmorrhage. And it is to be observed that death does not appear to result from the quantity of blood lost. For example, in cases such as No. X., the patient is destroyed by asphyxia, not by syncope. In Case IV., in which hæmorrhage occurred into the pleura, the patient survived the first attack of bleeding, and even rallied in a degree. In Case III., the suddenness of the fatal attack, with prostration, bloodlessness of the surface, and speedy dissolution—though the result was delayed with revived vital power, it is probable that death arose from the same cause; and in both cases the shock and prostration of the system were altogether disproportioned to the loss of blood.

It is not essential to the object and general intention of this paper to give any categorical statement of the results to which these cases or my experience otherwise have led me, as my purpose has not been to discuss, so much as to illustrate the subject. Those who do not possess opportunities of watching many cases, or of studying them with minuteness, will admit the practical advantage of this mode of illustrating the diagnosis of substernal aneurisms.

I conclude with the following statement of some of the considerations that arise out of these cases, and which were of value in their diagnosis:—

1. The all but invariable importance of dulness of percussion.
 2. The great diagnostic value of a cavernous intensified character of the cardiac second sound;—heard over the seat of disease rather than at the sigmoid valves (Cases IV. to IX.).
 3. The rarity and uncertainty of diastolic murmur as a sign of aneurism (Cases VII. and VIII.).
 4. The importance of pain as a symptom; observing its neuralgic form and its conjoined fixed or local and lancinating character (Cases III., IV., and IX.).
 5. The relation of pain of the shoulder to interference with the phrenic nerve (Cases IV. and IX.).
 6. The occasional vomiting of ingesta as a consequence of irritation of both phrenic nerves (Case IX.).
 7. The occasionally temporary character of laryngeal symptoms (Case VII.).
 8. The diagnostic value of concurrent inflammation of the lungs (Cases III. and X.).
 9. The import of difficult expiration, as indicating mechanical obstruction of the trachea (Cases I. and IX.).
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ARTICLE III.—*On the Prevalence, at Different Times, of Certain Epidemic Diseases ; and on the Influence of Large Towns on Constitutional Affections.* By ROBERT CHRISTISON, M.D., F.R.S.E.; Professor of Materia Medica in the University of Edinburgh; President of the Fourth Department of the National Association for the Promotion of Social Science. Being the Address on Public Health delivered at the meeting of the Association in Edinburgh.

THE office whose duties I have had the honour of being appointed to discharge at these meetings has been filled in turn, since the birth of our Association in 1857, by men of no less mark than the Hon. Mr Cowper, Lord Shaftesbury, Lord Ebrington, Lord Stanley, Lord Talbot de Malahide, and Mr Fairbairn. When I made this discovery, I first became sensible that, in undertaking to deliver this address as their successor, I had incurred a greater responsibility than I was aware of in accepting it. As your president, I thought I could not repeat those general considerations which have been put before you so often and so ably by my predecessors, and which would, I feel, lead in my hands to little else than weariness on your part, and unprofitableness on mine. Turning next, among other suitable subjects, to the readiest which lay within my reach, the advancement made in our knowledge of public health since this Association last met a year ago, it appeared to me that the progress made in that time had not been in any way so remarkable, that the retrospect was likely to prove either a large enough or a pleasant enough theme. I have therefore been led to look for materials to the very opposite quarter. For some time past we have been told a good deal of what has been latterly done in this field. I propose rather to say something of what is still undone. An inquiry of that kind will be less flattering to our vanity, but it may turn out more serviceable, if we should succeed in discovering some well-defined desiderata for a better knowledge, and a better condition, of the public health; and more especially if we can thus point out blanks in our knowledge, which may be filled up through means of encouragement held out by the Social Science Association.

I propose to look at my subject from a physician's point of view. I am inclined to think it is well that we should all sometimes look at public health from this direction. The branch of knowledge called public health is not essentially medical in all its details. It is far from indispensable that every inquiry concerning it be carried on by the physician alone. On the contrary, much has been done in this line, and well done, too, by members of the Association, as well as by others not belonging to the medical profession. But there are inquiries of great consequence to public health, which no one can fitly undertake without a wide acquaintance with medicine. Others, which may be carried on independently, may nevertheless

require to be tested by reference to medical principles and medical experience. And, on the whole, the closer the bond of union is drawn between medicine and public health, the better will it be for the stability of the latter branch of knowledge. This truth seems to have been sometimes lost sight of lately; and perhaps it is on this account that some non-medical inquirers have arrived at conclusions which medical observation refuses to confirm.

Public health, in the simple acceptation of the term, means nothing more than the aggregate health of each individual in a community. But, as a branch of social science, public health deals as little as possible with individuals. Its principles rest on observations made on bodies of men. Inquiries into public health are carried on with reference to bodies of men, because in that way we escape the disturbing effect of collateral circumstances. For a reason somewhat analogous, such inquiries are best carried on, not by individuals, but rather by bodies of men, or by individuals acting under their authority, or liable to their check; because we are thus more likely to escape the bias arising from the prepossessions of individual minds. And further, when measures for raising the standard of public health are based on such inquiries, it is not left to individuals to carry them through. They generally require aid from the municipal powers, or the general government itself, of a country. Hence the importance of attaching the study of the public health to this Association, as a department of social science. For inquiry will thus be encouraged; its conclusions will be tested by discussion in the hands of many well-qualified persons; and the resulting measures will go forth to the nation with the sanction of a public body, and with the aid of many who have either a share or an influence in legislation.

Public health, as a branch of social science, treats of the agents which influence, for better or for worse, the average bodily vigour, mental energy, healthiness, and length of life of the community. The main agents of this kind are the earth, and its covering, the air, water and heat, food, drink, and exercise, occupation and habits, education, whether bodily or mental, and moral discipline. They act by favouring or engendering diseases, or, on the contrary, by circumscribing or extinguishing them. Very few diseases are exempt from the influence of one or more of these agents. But hitherto the researches of the inquirer into public health have been necessarily confined to certain great classes of diseases, and some special diseases of frequent occurrence.

The study of public health may be taken up from the basis of the agents that influence it. The study may be undertaken also from the basis of the diseases whose sway is ruled by these influences. The physician naturally prefers the latter order of inquiry. The relations of diseases and groups of diseases to the various agents I have enumerated, is a very large subject—much too large to be exhausted on such an occasion as the present. I may be

supposed, therefore, to have been inconsiderate in choosing such a topic for this address. But I have thought it might interest you more, and be more in keeping with my own pursuits, if, instead of the eloquent general views usually dealt with by those in my position, I should endeavour to offer you a sketch of the mode in which the principal diseases or groups of diseases are influenced by the agents which affect the public health, and attempt to illustrate, by a few apposite instances, what has been already done, and what remains to be done, for lessening the prevalence of such diseases, and the mortality, ill-health, and pecuniary loss arising from them.

In carrying out this design, I shall take for my guide, wherever I can, the Government Register of Deaths, which ought to be our main text-book in all inquiries relative to public health on the large scale. I must deviate, however, from the register in its classification of diseases, which will not suit my purpose altogether; for diseases are by no means always so grouped there as to bear relation to the agents which cause or favour them. Keeping that relation in view, we might comprise at least five-sixths of the deaths in the register in the nine following groups:—1. Epidemic diseases; 2. Inflammatory diseases; 3. Diseases of the brain and spine; 4. Diseases of the heart and bloodvessels; 5. Diseases of the digestive organs, not included in the inflammatory groups; 6. Diseases of the uterine organs; 7. Diseases of the urinary organs; 8. Diseases of depraved constitution; 9. Death from violence. The remaining sixth of the register consists mainly of deaths whose causes are so vaguely given in the returns, that they are incapable of being arranged with any defined group.

I propose to take the Scottish register for my guide. I suppose it is generally as exact as the English register, and, though on a less scale, yet quite large enough; and it has the advantage of supplying facts from large populations the most different we could well find in civilized society as to situation and manner of life.

When the Medical Registrar for Scotland, Dr Stark, drew up in 1861 the "First Detailed Annual Report of the Registrar-General for Scotland" for the year 1855, he found the average mortality to be lower than in any other kingdom in Europe—viz., one in forty-eight annually. He therefore properly added a *caveat*, that this particular year might not yield a true average. I am happy to say that ulterior experience exactly confirms the original result, the average for seven years ending with 1861 being also one in forty-eight. It would be most interesting to trace the diseases which occasion that relatively low mortality, compared with those which cause the higher rates of less favoured lands—Lower Austria, for example, where the deaths actually reach one in 27·4—and thus to see whether in this way the agents which produce, and the influences which extend, disease, can be discovered, and then possibly mitigated or removed. But there is an insuperable difficulty in the constitution of the register itself. It may surprise you to learn that

even in Scotland, which is supplied with medical men not inferior in professional skill to those of any other country, more than a fourth part of the deaths are returned to the registrar in a shape which renders them useless for such an inquiry as that now referred to. A tenth part of the deaths in 1855 are returned without a cause being stated at all. Of the remainder, about a fifth are returned in a nomenclature which admits of being interpreted in two or more ways, or in any way one likes. The deaths in 1855 were 62,000. Of these, 5732 were returned without any cause being assigned; 5725 were referred to such vague causes as lung disease, asthma, atrophy, sudden death, teething, and diseases of unascertained seat; and 5685 were referred to the gradual decay of old age. The English register is not quite so defective as this. Nevertheless, the deaths unreturned, or faultily returned, amount to a fifth of the whole.

Let it be understood, however, that no blame attaches to the registrars. But there was an error on the part of those who organized the list of names of diseases to be used by the certifiers of death. Lung disease is a term which positively invites a man to carelessness. It should be extinguished. I suspect most returns under it should be transferred to the category of pulmonary consumption; but it may correctly mean one or other of at least four well-defined diseases. The term asthma is not more fortunate. When it causes death, it may mean bronchitis, or emphysema of the lungs, or heart disease. Dropsy is even worse. It is not once in fifty times the disease, but a mere symptom of the disease; which may be diseased heart, or kidneys, or liver, or lungs, or pancreas, or peritoneum. Deaths from atrophy, sudden death, teething, 1767 in number, are little else than so many confessions of ignorance. The 5685 deaths from old age are nearly on the same footing. Few people really die through gradual failure of the functions of life. Even the oldest, like young people, die mostly of special diseases. Nine-tenths die of bronchitis, diseased heart, diseased liver, diseased bladder, diarrhoea, and a wearing senile fever, which is apt in old people to be the issue of an attack of almost any acute disease. An observant physician seldom sees his patient truly die of the gradual decay of old age. I can safely say that I have hitherto seen only one man die in that way.

These faulty returns, useless for all statistical purposes, amount in the Scottish register to 17,142 of 62,004, or between a fourth and a third of the whole. The fact suggests a grave matter for our consideration here. We take into high favour the statistical method of investigation. In our prospectus inviting papers, we give an express preference to those based on statistics. But, in truth, in questions relative to public health, the statistical method of settling them may be quite as open to fallacy as any other. There are questions, indeed, as to which this method is positively more fallacious than any other,—for example, than general observa-

tion and experience,—if the statistical basis be so loose as to embrace only two-thirds of the facts which the questions have to deal with. Some time ago I was desirous of verifying statistically an important fact as to public health, stated to me on very good authority as the result of general observation in one of the large islands of Scotland. On applying to the Registrar-General's office, in the hope of testing this statement statistically, I was informed that at that time Government had not sanctioned the necessary additional outlay for summing up the details of the register. At last came forth the "Detailed Report" in 1861; and there I find that almost one-half of the deaths in the islands, of which this is one, are referred in the certificates so loosely to their causes, that they must be left out as unserviceable. For my purpose on that occasion, a register so defective was good for very little,—for much less, certainly, than the general impressions of an acute physician, which it was my aim to test. I have been repeatedly arrested in the same way in attempting to arrive at results for illustrating this address.

The insufficiency of the register amounts to more than a simple defect. It may be thought, and it has been said of such defects generally, that a register is good for so much as the correct returns amount to,—in the Scottish Register, therefore, for nearly three-fourths of the population. For it is assumed that the faulty returns may be rectified by distributing them among the sound ones in proportional rates. This may be true for some purposes. If the inaccuracies might be safely held to bear upon all diseases according to their actual proportion in causing mortality, or in the correct returns, the loss of even a third in so large a number as 62,000 deaths, might prove unimportant for most objects. But unfortunately we cannot safely make that assumption. Defects and errors in a national register with such a nomenclature as our own bear much more on some diseases than on others. The deaths from diseases so easily recognised, even by unprofessional persons, as smallpox, measles, scarlatina, erysipelas, cholera, croup, apoplexy, palsy, dysentery, hooping-cough, and even pure fevers, are far more likely to be returned correctly, and also entirely, than those from bronchitis, pneumonia, pleurisy, diseases of the heart, liver, and kidneys, tabes, and malignant diseases, as to which unprofessional persons are very dubious authorities on almost any occasion, and professional people evidently often careless or not well-informed. The former set may with reason be assumed as all returned, and nearly all correctly returned. On the contrary, the latter set are apt to be returned incompletely and incorrectly. They form, in fact, the great mass of deaths concealed under the heads of atrophy, asthma, lung disease, diseases of unascertained seat, sudden death, and old age; nor has the registrar any guide to a correct distribution of these loose returns among the exact ones.

I hope I may not be thought to have been wrong in bringing

this matter forward on the present occasion. The Legislature has supplied us with a complex, costly, and, to the members of my own profession, troublesome machine, which, for want of a little repair and extra outlay, has hitherto put out only an inferior article. Such a state of things, in regard to what must be the fundamental basis of most exact inquiries into public health, ought not to exist in a country like our own. I submit that the register ought to be put to rights, if possible, and that this Association may usefully lend its influence and aid for the purpose.

It must not be inferred from what has been said that the Scottish register may not be applied with security to many statistical inquiries into the public health. On the contrary, it is a sound source of information for the very next topic which I propose to bring under your notice.

The first group of diseases I will notice is the first in the register, viz., that of Zymotic diseases. They are so called, from the Greek noun, *ζυμη*, signifying ferment, on account of a rather fanciful resemblance between their origin and the process of fermentation. They might have been equally called by the familiar term epidemic diseases—i.e., diseases which tend to spread at times widely among the people; because, although this word has a more restricted meaning in professional nomenclature, it is used in common speech to include all diseases which ought to be comprised in the zymotic class. They are chiefly simple fevers, eruptive fevers, influenza, puerperal fever, diphtheria, croup, cholera, hooping-cough, dysentery, and others of less note. Of all groups of diseases they are considered the most important in respect of the public health; for, in the first place, they account for 24.1 per cent., or almost a fourth part, of the mortality of the country. Nor is there any mistake here; because the register is not likely to be far wrong through faulty returns in regard to diseases so easily recognised even by unprofessional people; and, secondly, according to all recent experience, general no less than statistical, it is certain that much may be done, under the will of Providence, by human wisdom and human means, to lessen their ravages, and, above all, to put down their epidemic visitations.

This is a large subject, so large that I must be content with touching on a few salient points only.

Simple fevers include ague and marsh-remittent fever, inflammatory fever, typhus, enteric fever, and gastric fever. The four last-mentioned are classed in the register under the single head of typhus. They account jointly for almost a fifth of the deaths from epidemic diseases, and for 4.47 of the total mortality.

The first point I shall ask you to note under this head is, that Ague is not accountable for a single death in Scotland. There are 107 heads in the register, and that for ague is the only one which stands blank. Hydrophobia, which accounts for a single death, is nearest to it. But the entry under ague, which takes in also the more

deadly marsh-remittent, is *nil*. And more than that, there is no ague in Scotland. I have asked many of my country brethren if they ever saw a true ague,—an unequivocal intermittent fever,—of home growth; but no one has been able to assure me that he has seen any in Scotland except such as I have myself seen—*viz.*, caught abroad, or in the fenny parts of England. But ague was at one time very common indeed in many parts of Scotland. My father, a Berwickshire man, often told me that in his young days, probably about 1775, ague was so common among the farm labourers of that famous agricultural county, that a prudent farmer always set off on account of it a certain proportion of no-work days for his men in spring and autumn. The same was the state about the same time of the neighbouring county of Roxburgh. To Dr Mackenzie of Kelso I am indebted for information, unique and satisfactory, as to the dates of the prevalence and disappearance of ague in that part of Roxburghshire. There are dispensary records extant there for one of the oldest dispensaries in Scotland, beginning, in fact, with 1777.

The annexed table has been extracted from these records, showing the agues for every year successively from 1777 till 1806, after which ague disappears from the dispensary books:—

Year.	Total admitted.	Ague.	Year.	Total admitted.	Ague.
1777	... 302	... 17	1792	... 570	... 16
1778	... 306	... 33	1793	... 666	... 19
1779	... 460	... 70	1794	... 447	... 9
1780	... 675	... 161	1795	... 513	... 23
1781	... 510	... 103	1796	... 355	... 12
1782	... 440	... 61	1797	... 318	... 9
1783	... 510	... 73	1798	... 415	... 7
1784	... 459	... 40	1799	... 558	... 2
1785	... 573	... 62	1800	... 665	... 4
1786	... 563	... 48	1801	... 433	... 9
1787	... 525	... 24	1802	... 377	... 5
1788	... 577	... 25	1803	... 308	... 2
1789	... 546	... 48	1804	... 422	... 5
1790	... 640	... 18	1805	... 469	... 0
1791	... 715	... 13	1806	... 318	... 1

From this table it appears that the number of agues rose in 1780 to 161; by which time the total applicants for all diseases was nearly 700. Then it sank gradually to 18 in 640 applicants in the year 1790; and afterwards it went on fluctuating, but still on the whole diminishing, till in 1800 there were only 4 agues in 665 patients, none in 1805, and 1 in 1806; since which year no case of ague appears on the dispensary books. What, then, has been the cause of this striking improvement in the public health of Scotland? In what change of circumstances did it take place? This much is clear. We do not owe the blessing either to the Government of the country or to the College of Physicians,—no, nor to Social Science. We owe it to incidental causes ruled to their end by another Power. In fact, it has been allowed to fall upon the country everywhere without

having been even publicly noticed anywhere at the time,—an omission of which we certainly should not have had to complain had any man, or body of men, been able to claim credit for it. The real cause it may now be difficult to recover at so distant a date from the event; but this Association may lend its help. I can scarcely think that the great mass of old family records and remnants of old farm-books in Scotland should all be silent on such a subject; and surely an appeal from this Association should call forth the information.

I may be told that the disappearance of ague in Scotland is generally ascribed to the drainage of the country in the march of agricultural improvement, which began in the Border counties about the period referred to above. This is a tradition; but there are grounds for calling it in question. For example, I was assured, I think about 1820, by a well-qualified friend,—the late Mr Walker-Arnot of Arlary, father of the present Professor of Botany in the University of Glasgow, an able agriculturist and well-informed gentleman, who farmed his own property in Kinross-shire,—that he had been positively assured by the surgeon of his district,—a man much his senior in years,—that ague had all but disappeared from that county before the introduction of improved drainage; and that this gentleman ascribed the change rather to improved living among the farm labourers. Then we know that a long time elapsed before the practice of extensive drainage extended from the Border counties to other parts of Scotland, where, nevertheless, there is at present reason to believe that ague disappeared about the same time as farther south. And, moreover, there are still marshes in some parts of Scotland, but there is no ague. Three sorts exist,—peat-marshes, irrigated meadows with pure water for the liquid, and irrigations with foul water. But all are alike ague-free. The last sort might with reason be strongly suspected; for, as managed in the immediate neighbourhood of Edinburgh, they present that frequent alternation of considerable moisture and approach to dryness, that rankness of vegetation, and that abundance of decaying organic matter, which are thought, when combined, eminently to foment intermittent and remittent fevers in countries liable to these diseases. But if there be any doubt as to the general salubrity of the now famous marshes of Craighentinny, as to which I shall have a word to say by and by, there is none at least as to the total absence of ague among their inhabitants.

There is good ground, then, for an inquiry, in which this Association could lend its aid, into the circumstances which have led to the disappearance of ague from Scotland. Dr Mackenzie has supplied one half of the test. Since getting his table I have not had it in my power to satisfy myself about the other half. Dr Douglas, writing his "*Agriculture of Roxburghshire and Selkirkshire*" in 1796, speaks of extensive draining having been effected in the former county by that time; but he also mentions incidentally in

many places "marshes," "marshy lands," "a great deal of fenny land," and "a deficiency of drains." I hope the history of agriculture may yet supply more positive evidence. The results may be of great consequence. Many of our colonies are now overrun with ague and its sister remittent fever. It can scarcely be that a successful inquiry into the agencies by means of which ague has been extirpated from Scotland should fail to be of service to our countrymen towards freeing also from that scourge the lands of their adoption.

Scotland is very far from having attained the same happy deliverance from continued fevers as from those of the intermittent type. But there are some very remarkable facts in their recent history, which point to the possibility of such an event, and at any rate to the fruitfulness of further inquiry on the subject.

Four different forms of continued fever have been recognised by various authorities—inflammatory fever, typhus, enteric fever, and gastric fever. The registers of England and Scotland recognise only typhus. I presume they do not necessarily hold that all four are of one kind. The general doctrine—which some doubt, however—regards them as all distinct, and I do not mean to call that doctrine into question at present.

The first is in every circumstance the most singular of all fevers—whether, for example, we look to its nature and form, or to its strict bearings on public health. It has been variously called synocha, inflammatory fever, simple fever, and relapsing fever. The last name, which it has of late generally borne, is nevertheless a misnomer. It no more deserves the name than ague deserves to be called relapsing fever. It is a fever of tolerably definite duration, extending mostly to seventeen days; but with the singular peculiarity that there is an interruption in the middle of it, varying from seven to ten of these days. It is far from being a deadly fever; but it causes great suffering, and debility so lasting, that it makes a working man unfit for labour for two months, first and last. Strange to say, in this city at least, where it has been better studied than anywhere else, it is never seen but as an epidemic. I have known four such visitations of it—in 1817–20, 1827–28, 1841–42, and 1847–48; but I never saw it in the intervals, nor has any of my Edinburgh brethren. Hence, at every fresh appearance, it is at first taken for a new fever. It occurs only at periods when work is scarce, wages low, provisions dear, and the labouring classes consequently in unusual distress. In accordance with this fact, it is met with in the labouring population alone—never in the easy ranks of society, unless through very decided exposure to infection. For, in the next place, it is an infectious fever. Of this I have produced elsewhere proof which has never been controverted.* But the infection is not a virulent one, and the progress of this fever by infection may be utterly extinguished.

* See Dr Tweedie's Library of Medicine, vol. i. 154. 1840.

This is the main fact to which I desire to draw your attention as social reformers. Healthy persons in communication with fevers of this kind accumulated in an hospital ward, or lying in less numbers in their own small unventilated chambers, are seized almost certainly if they remain long enough, and are not shielded by a previous attack. But from a single case of this fever, in a middle-sized, well-aired room, it is never communicated to the healthy. With these facts before us, of which I could furnish pointed proof, were there time, it is evident theoretically how such a fever is to be extinguished. The favourite panacea of the present day for the prevention of all fevers—thorough drainage—is not the remedy. The best drainage leaves untouched the real foundation of the disease—viz., penury pent up in airless dwellings. But provide work for the unemployed, obtain from them in return due ventilation and cleanliness, and the epidemic will soon vanish. First, the new condition of things will make its infectious power harmless, and ere long it will cease to arise by spontaneous generation.

The carrying out of this theory into practice is, however, a formidable difficulty. How is work to be obtained in hard times for the unemployed? And, still more, how are the labouring classes to be taught the habit of ventilating their apartments? Success must depend on the resources, faith, and energy of a sympathizing community, and upon the convictions of its suffering portion. But, at all events, we have a fundamental principle of social economy firmly established—that no epidemic of inflammatory fever can long withstand employment of the workman and fresh air in his house.

Typhus, simple typhus, nervous fever, low fever, putrid fever—a disease so familiar as to need no description here, though very different in form from the last—presents many agreements in those characters which give them both interest in the eyes of the cultivator of social science. It has its epidemic visitations; and fearful ones we have seen all over Britain, especially in this city, where there have been no fewer than five during the last forty-five years—the last and worst having occurred between 1847 and 1849. It puts on the epidemic shape only at periods of want among the labouring classes. Howsoever it may arise in the first instance, it spreads by infection; but its infection is not intense, hence adequate space and ventilation make it innocuous in that way, in so great a degree as to have misled good observers, and made them doubt its infectious property. So far typhus agrees with inflammatory fever. But, *firstly*, it is far more deadly, one in ten being the probable average of deaths from it. *Secondly*, it occurs at all times, and not merely at epidemic seasons. Seldom does a week pass in a large town like Edinburgh, without one or more deaths from typhus appearing on the register. *Thirdly*, in these non-epidemic periods it is met with among the rich as well as the poor, and perhaps in as great a proportion to their relative numbers.

Nothing is known of the origin of typhus in non-epidemic

periods. Infection will not explain the occurrence of such fevers—not those, at least, which show themselves in the easy ranks of life. With the most ordinary care, cases of it in that circle do not reproduce it in the exposed; whence, then, could it reach themselves by communication, who had not had any exposure to it within their knowledge? Neither does it originate, at least generally, in faulty drainage, or other sources of foul air. In the metropolis, indeed, it is at present a prevailing opinion—much in favour also, as I understand, in this Association—that the sources of foul air are likewise the sources of typhus; but such a rule will not apply in Edinburgh. Foul air undoubtedly favours the spread of both typhus and inflammatory fevers in their epidemic visitations; for, setting aside its possible operation in other less ascertained ways, it implies confined air, want of ventilation, and therefore concentrated infection. I do not mean to deny that foul air of some kinds may sometimes simply cause typhus; but there must be better proofs than now exist, before this can be admitted as the constant or even general fact. Foul air will not account for the origin of the scattered (sporadic) cases of typhus in non-epidemic times. As little will air, merely foul, account for either the rise or the fall of epidemics. Every physician of experience in this city has repeatedly seen in a family a solitary case of well-marked typhus, which no skill could trace to foul air in any shape, or from any source. No one ever heard here of the spread of typhus in the epidemic form being referable to an increase of foul air, apart from the resulting concentration of infectious effluvia from those ill with the disease. We have had within the last few years an instance of the fall of a great epidemic, the worst on record, without any commensurate amelioration of air, drainage, or other branch of cleanliness. This incident is so remarkable in its circumstances as to deserve careful consideration.

The annexed table shows the variations of fever in Edinburgh year by year since the century began, as derived from the records of the Royal Infirmary:—

12 mon. to Dec. 31, 1800, .	329	12 mon. to Dec. 31, 1817, .	485
... .. 1801, .	161	... .. 1818, .	1546
... .. 1802, .	156	... .. 1819, .	1088
... .. 1803, .	232	... .. 1820, .	638
... .. 1804, .	323	... .. 1821, .	327
... .. 1805, .	175	... .. 1822, .	355
... .. 1806, .	95	... .. 1823, .	102
... .. 1807, .	110	... .. 1824, .	177
... .. 1808, .	111	... .. 1825, .	341
... .. 1809, .	186	9 mon. to Oct. 1, 1826, .	450
... .. 1810, .	143	12 mon. to Dec. 31, 1827, .	1875
... .. 1811, .	96	... .. 1828, .	2013
... .. 1812, .	103	... .. 1829, .	771
... .. 1813, .	75	... .. 1830, .	346
... .. 1814, .	87	... .. 1831, .	758
... .. 1815, .	96	... .. 1832, .	1394
... .. 1816, .	105	... .. 1833, .	878

12 mon. to Dec. 31, 1834, .	690	12 mon. to Oct. 1, 1849, .	726
... .. 1835, .	826	... .. 1850, .	520
... .. 1836, .	652	... .. 1851, .	959
... .. 1837, .	1224	... .. 1852, .	691
... .. 1838, .	2244	... .. 1853, .	574
... .. 1839, .	1235	... .. 1854, .	168
... .. 1840, .	782	... .. 1855, .	201
... .. 1841, .	1372	... .. 1856, .	180
... .. 1842, .	842	... .. 1857, .	132
... .. 1843, .	2080	... .. 1858, .	111
9 mon. to Oct. 1, 1844, .	3339	... .. 1859, .	183
12 mon. to Oct. 1, 1845, .	683	... .. 1860, .	152
... .. 1846, .	693	... .. 1861, .	122
... .. 1847, .	3688	... .. 1862, .	136
... .. 1848, .	4693	... .. 1863, .	196

From this table it appears that after 1816, for a period of thirty-six years, the continued fevers of Edinburgh, of which typhus formed the largest proportion, seldom fell short in the Edinburgh Infirmary alone of 500 in any one year. In 1818 and 1819, the annual average reached 1300; in 1827 and 1828, nearly 2000; in 1837, 1838, and 1839, nearly 1600; in 1843 and 1844, above 2700; and in 1847 and 1848, 4200. It then suddenly fell next year to about 700, and kept that average for five years. But in 1854 it sank again abruptly to 170; since then the annual fevers have never exceeded 200. The average for the last ten years has been 158. Last year there were only 136; and this year, which ends for the hospital statistics on 1st October, there were 196. Until 1860, the statistics of the Infirmary did not distinguish the several forms of fever from one another. In 1847 and 1848, however, the annual average of typhus could not have fallen short of 2500; and after that it must have been between 400 and 500 until the year 1854. But in 1860 the number was accurately ascertained to be 67; in 1861, it was 50; in 1862, 14; and in 1863, 74. I am further indebted to the medical officer of the city, Dr Littlejohn, for the fact that the deaths from typhus for the whole town, registered in nine months since 1st January, have been 18. According to the average mortality of typhus, this number indicates 240 cases of typhus for the present year.

Now, about the period of this decrease, the drainage of that part of the city where the chief nests of fever always lay was improved. But the decrease began decidedly before the commencement of that reform. I am informed by our superintendent of drainage, that the works for improved drainage of the worst part of the city—the Grassmarket, Cowgate, Canongate, High Street, and the closes communicating with these—were only begun in 1854, were far advanced only in 1858, and are now all but finished. Neither can the rapid decrease of fever be ascribed to any satisfactory improvement in the cleaning of the lanes and houses of the working classes. I believe that long prior to the decrease, our police had done as much for the cleansing of the fever districts as the impracticable

structure of the streets or lanes there, and the incorrigible habits of their occupants, would allow. And as for the home habits of these people, no such improvement of them has taken place in my time as will explain any other change of circumstances in their social economy.

Here, then, is a discovery which remains to be made in social science. Why is it that typhus, which had been almost a perpetual pestilence in Edinburgh for a third of a century, has been of late wearing itself out, and last year almost flattering us with its extinction? The cause has certainly not yet been discovered. My own strong impression is, that the secret will be found to be connected with the theory which has been much canvassed in the present day, the successive changes of type or constitution of epidemic diseases. But as this is a favourite theory of my own,¹ I shall not here insist on it further than by warning all inquirers into the origin of zymotic diseases in foul miasms, that they run great risk of ascribing to these, and the removal of these, fluctuations in the prevalence of such diseases which are often far more probably owing to a more recondite cause—a change in epidemic constitution. In the meantime, the experience of the physicians of Edinburgh presents us with the precept, also derived from the experience of other great towns, though, perhaps, nowhere else so categorically, that typhus never can prevail in the epidemic form in face of employment for the working-classes and ventilation of their dwellings.

In the present line of inquiry, there is no occasion for noticing any other fever than enteric fever. Gastric fever, the only other sort arranged under the head of continued fevers, is not generally acknowledged at present by systematic authors. If it be a separate fever, it is one which, according to my own observation, occurs chiefly in the easy and wealthy ranks of life, and owes its origin mainly to high living and over-indulgence in the excitements of society, whether of the nature of business, study, or amusement. We have little to do with it therefore. Enteric fever is very differently circumstanced.

This disease, variously called dothinenteritis, entero-mesenteric fever, enteric typhus, typhoid fever, but most conveniently Enteric (bowel) fever, is the most deadly of all forms of continued fever. It was first distinguished from others in Germany in 1763, and was first accurately described in France by Bretonneau in 1812. It began to be distinguished from others in London about the close of the first quarter of the present century, and first of all by Dr Bright in 1827. A little later, a few cases occurring in hospital here attracted great attention. It has since increased in both cities, as well as in Britain at large. In London it has been common for many years, and is sometimes the commonest of all forms of fever. In Edinburgh its course has been very singular, and deserves care-

¹ See Edinburgh Medical Journal, 1857-58, iii. 578.

ful attention with reference to English opinion as to its cause, and the sanitary conclusions to which that opinion leads.

For many years after Bright wrote about it as a frequent fever in London, we saw it seldom here—never in the proper inhabitants of the city, but only in persons brought ill with it from Linlithgowshire or Fife, or who had quite recently left these counties. It began to be studied here with great care on its being recognised in the Infirmary in 1847, in a German lad only six months from his "Vaterland," on which occasion it was believed that no case had occurred in the hospital for a period of five years. By-and-by it became not uncommon. For some years past every practitioner meets with it. It occurs among old residents and natives of the city. Within a few years it is encountered even among people in easy circumstances, and in the best houses of the town. In our Infirmary statistics, it was not taken account of separately from other fevers till 1860. In that year, according to a table supplied to me by Mr Macdougall, superintendent of the hospital, there were 41 cases of enteric fever; in 1861, 35; in 1862, 79; and in 1863, 67; during which period the fevers of all kinds did not exceed 150 in any single year till the present, when they reached 196. These are no great numbers, and yet sufficient to show a decided tendency to increase during the last fifteen years. Further, Dr Littlejohn, medical health officer for the city, informs me there have been seventeen deaths from enteric fever reported to the registrar since the 1st of January last, which will correspond with about 120 cases in twelve months, if the average mortality be taken at one in five.

Of all forms of fever none has been more confidently ascribed than this, by London writers, medical and non-medical, to faulty drainage and faulty provision of water-closets. If we are to believe what some have advanced on the subject, there is no case which may not be traced to foul air, derived mainly from one of these sources. Were this a well-established principle in social science, the extinction of so deadly a fever should be no very difficult matter. Through the publicity given to the discovery by this Association, and the influence of its members, we might hope to see protection established far and wide against the pestilence.

But I am sorry I cannot call on you to assent to this theory, and carry out its consequences; for there are insurmountable facts in its way. During the period that this scourge has been alternately growing and diminishing in London, has London become alternately worse and better drained, or have the habits of its working-classes been alternately less and more cleanly? Does the disease generally appear where drainage is bad, or water-closets wanting or faultily constructed? Does it attack workmen who live in the London drains, as well as those over them, near them, or far from them? I believe all these queries must be answered in the negative. And what is the case here? Our street drains in the Old Town have

been much improved during the very period that enteric fevers have been increasing. The habits of the working-classes in regard to cleanliness admit of reform undoubtedly, but certainly they have not been growing worse. Besides, the individual cases which have been occurring here have been made the subject of careful inquiry, and in many of them it has been impossible to discover any peculiar source of foul air—anything different from what may be met with in thousands of dwellings where this fever has never shown itself. Of the seventeen deaths hitherto this year, nine occurred in localities to which no objection could be found. And what are we to say of its appearance among people of easy circumstances? In this sphere I have myself known several deaths from it during the last few years, and no fewer than three during the last twelve months. In the first place, why has it occurred in that class of society only of late? Surely not from any general increase in defective drainage, defective water-closets, or other sources of uncleanness. As to the history of individual cases, I have been content to ascribe the disease, in obedience to the theory of London writers, in one instance to gross disregard of ventilation, and in another to a faulty water-closet. But in the last three I have seen no fault could be found anywhere. Further, this fever does not by any means generally break out where the streets are ill-drained, water-closets wanting, and habits filthy. In countless places of that sort in Edinburgh it is unknown. It may be worth while adding, in reference to an independent question likely to be discussed in this section, that enteric fever is not known in or near the “foul meadows” of Craigenlinny.

I suspect, then, it must be allowed of this disease, as in respect to most other epidemic diseases, that we do not yet know its cause—that foul air merely favours its invasion; but that its true cause is something much more specific—some ζυμη, or ferment, which has hitherto eluded our search. In that case, while we shall do well to encourage better drains, more and better water-closets, and better ventilation of dwellings, still we must not count upon thus extirpating enteric fever.

As I am anxious to bring under view some part of a very different subject—the class of diseases originating in a depraved state of the bodily constitution—I regret that I must here quit the subject of epidemic diseases, of which there remain many for consideration—such as cholera, dysentery, diphtheria, smallpox, measles, and scarlatina. Smallpox especially might have been aptly discussed this season before the Association, both on account of its increased prevalence last year, and because of the hints recently conveyed to the public that the English Vaccination Act is to prove a failure, as well as because a similar act is about to come into force in Scotland. But time will not allow of so extensive an inquiry as is necessary to complete the whole subject of zymotic diseases; and I must be satisfied with a brief allusion

to only one more of them—Diphtheria—which happens to be connected with a sanitary question of strong local interest in Edinburgh.

This terrible disease is far from common in Edinburgh. I am glad to say I have seen but one instance of it originating in town, and that was many years ago, before it had begun to be much talked of in any part of Britain. No epidemic disease has been by many late writers in England more confidently referred to foul exhalations as its cause, and even its only cause. I shall not take up that question here, however. My own observation gives me little help in forming an opinion. Let me merely say that, as I, in the single case I have seen in Edinburgh, so likewise many of my professional brethren, in the course of their observation, have failed to trace diphtheria to any source of foul air. But it is remarkable that it seems to have shown a slight attachment to our irrigated meadows to the east of the city. An intelligent practitioner in Leith, Dr Paterson, informs me he saw, last year, five cases at a place on the borders of the district.

I scarcely think, however, that, taken along with the negative evidence I have received from others who practise among the natives of these marshes, these cases, which may have had a more local cause still, can be held singly to convict the irrigated meadows. For I wish to add the information, that I have recently been making careful inquiry respecting this famous and somewhat unsavoury institution; that many years ago my own prejudices were all against the meadows; that I have been compelled to surrender them; that I am satisfied neither typhus nor enteric fever, nor dysentery, nor cholera, is to be encountered in or around them, whether in epidemic or non-epidemic seasons, more than in any other agricultural district of the neighbourhood. About twenty-five years ago it was stated that the cavalry soldiers at Piershill Barracks, which are situated very near them, were unusually liable to the zymotic diseases caused or promoted by foul emanations, and also that meat could not be kept in the officers' larder on account of the absorption of foulness and quickly following decay. Either, however, there was some mistake committed through prepossession, or the meadows are now worked on a better system. But, at all events, I have the assurance of Mr Lockwood, surgeon of the Scots Greys, that, during their late occupation of Piershill Barracks for two years, the messman of the regiment never observed the meat to be injured, nor did he himself observe among the men anything but remarkable freedom from diseases at large. I think it right, in reference to the late introduction of the Craigentinny system of irrigation into the vicinity of other large towns, that these precise facts should be known.

Of all the diseases in our civilized and modern condition that human flesh is heir to, none have a larger share in causing mortality, and none are more fruitful still in inquiry, reflection, and warning,

than the great group of diseases classed as dependent on deteriorated or depraved states of the constitution of the body. One tribe of these, the most numerous of them all, comprises Scrofula, Tabes, Consumption, and Water in the Head, which are usually classed together as tubercular diseases. The next in point of frequency, called Malignant diseases, because they creep from organ to organ, and lead surely to death, embrace scirrhus, fungus, and other forms of cancer. Gouty and Rheumatic diseases form a third tribe, and Diabetes a fourth; but all these are insignificant in their ravages compared with the others. All diseases of the class agree in apparently requiring for their development a depraved condition of the blood, or of some other component of the human organism; and from other diseases partaking of that character, they differ in being prone to descend from father to son, and increase in that respect by concentration through marriage. With the exception of gout and rheumatism, which medicine can do much to eradicate, they generally make sure of their victim at last. But they are slow to finish their work; and while it is doing, they are the most grievous of all maladies to bear. They are most grievous not only to the victim himself, but likewise to all who have to minister to him in his sufferings. It is a crowning misery, but too little adverted to, that the tending, and comforting him, as it falls to the lot of his affectionate family, becomes the duty of those who by similarity of constitution are least fitted to undergo safely so hard an ordeal. Add to all this, that these diseases are the main source of the deterioration of the human race in all physical attributes among such civilized communities as our own, and the Association cannot fail to discover ample inducement to study their influence upon public health.

The Scottish Register in its present form does not fully meet the student's wants in this branch of inquiry. But a useful step or two may be taken with its help, as it stands, in tracing the influence of Consumption, which may probably be held to exemplify and stand for all the rest. The entire class account for no less than 20 per cent. of the total mortality in all Scotland—for 4100 deaths annually in every hundred thousand of the population. Consumption alone accounts for more than half of this proportion,—viz., 11·5 per cent. of the total mortality, and 237 deaths in a hundred thousand of the population. It has been known for some time that the proportion falls under this average in country districts, and exceeds it in large towns, and Dr Stark's summary of the Register of 1855 shows that these differences are by no means small. I am not aware whether it has yet been noted, that the difference to the prejudice of the great towns of Scotland is much greater than their notorious difference in general mortality; or, putting the case variously, that the difference in favour of the country seems conversely to increase in a greater ratio than the diminution of the general mortality, and, *ceteris paribus*, always in an increasing ratio according to the

degree of rurality, if I may use the word, of the country district. These important facts can be made out so satisfactorily from the Register, that I will not hesitate to offer you some proofs in illustration.

Taking the population of Scotland in 1855 at three millions, and assuming that the deaths from consumption were nearly all specified, or at least uniformly so, which is probable, the total mortality in a hundred thousand was 2080, and that from consumption 237. Dividing the mainland into large towns of 10,000 people and upwards, and the rural mainland, comprising all smaller towns with the pure country, it appears that the mortality from all diseases for the rural mainland in 1855 is 1800, and in the towns 2580—or in the ratio of about 4 to 3 against the latter. But the mortality from consumption in a hundred thousand people was in the rural mainland 186, and in the great towns 333, or not much short of double.

But let us look into the facts more narrowly, and the real difference will be found vastly greater. In Glasgow, whose population in 1855 amounted to 356,000, and where all town causes of mortality greatly abound, so that the annual deaths reach 2890 in a hundred thousand, or almost one in 38 persons, those from consumption are so high as 385. Edinburgh and Leith, with a population of 206,000, present a mortality not much inferior,—viz., 2380 in a hundred thousand, or one in 42; but there is a greater difference in the deaths from consumption, which are 283. Contrast, however, with even the latter proportions the data derived from the very rural counties of Caithness, Sutherland, Ross, Cromarty, and Inverness, comprising a population of 240,000, and we find that the general mortality falls to 1617 in every hundred thousand, and that from consumption to 179. The consumptive mortality is already less than half of that of Glasgow. But these Celtic mountainous counties are not so favourably circumstanced as other rural counties with respect to other sanitary influences—such as climate, food, and medical aid. Turn then to the agricultural Lowlands of Scotland. In the fine agricultural counties of Roxburgh, Peebles, Selkirk, and Haddington, if we exclude two small towns, Haddington and Hawick, which, though under the town standard of the Register (10,000), own to the high mortality of one in forty, there is a population of 97,000, in which the total mortality sinks to one in 65, or 1546 in a hundred thousand, and the deaths from consumption to 138. In Fife, deducting 25,000 inhabitants of two unfavourably circumstanced towns, Dunfermline and Kirkcaldy, the population amounts to 130,000; and here the general mortality is 1750 in a hundred thousand, or one in 57, and the deaths from consumption 125—only a third of the proportion in Glasgow. But neither in Fife, nor in the four counties south of the Forth which I have grouped together, even when the unhealthy towns are excluded, is the population so free from the disturbing influences of mining and manufactures as may be desirable for a

perfect contrast. In the county of Berwick, however, we have the most perfect example in Scotland of a population combining the richest agriculture with freedom from the deteriorating influences of mining, manufactures, and large towns. None of its towns contains above 3500 inhabitants; there is, I think, only one large factory in it, a paper manufactory; and there are no mines. Here, accordingly, the total deaths in a hundred thousand fall to 1410, or 1 in 70, and the deaths from consumption to 104. The general mortality is nearly one-half of that of Glasgow, and the share contributed by consumption is as nearly one-fourth of the proportion in that city.

	Mortality 1 in	Consumption in 100,000
Glasgow,	38	385
Edinburgh and Leith,	42	283
The North Highland counties,	62	179
Four Lowland agricultural counties, } excluding two towns,	65	138
Fife, excluding two towns,	57	125
Berwickshire,	70	104

It will be objected to these results, as the basis of evident deductions, that, as I began by rating the general authority of the Register low, its trustworthiness in the particulars now made use of must be proved. This is easily done. The data for the North Highlands may be insecure; but in all other respects it so happens that I have used the Register where it is most worthy of confidence. The returns for Glasgow, Edinburgh, and Leith, and the Lowland agricultural counties, are very nearly complete; and in all these parts consumption has so well understood a meaning, that, in using the term, the errors must be few, and at all events pretty equable. Others may object that I am limited to the statistics of a single year. True. That may affect the general mortality and certain diseases; but there is no ground for supposing consumption to be one of the diseases whose range varies one year with another. The basis in the case of Berwickshire is narrow, for the population in 1855 did not exceed 36,500. Still, until Government shall favour us with a larger basis, by enabling the registrar to publish several years of "detailed reports," it is in the meantime a remarkable fact, supplied by every part of the Register for 1855, which can be aptly and fairly used for this inquiry, that wherever great towns, manufactures, and mining concentrate and confine great bodies of the people, there will consumption be found to spread its ravages in a much greater ratio than the increase of the general mortality; and, conversely, that the more the influence of these deteriorating agents can be excluded, the more does consumption progressively decrease, and in a much greater ratio than the decrease in the deaths from disease at large.

This general rule applies also, and even with greater force, to the three other diseases of the tubercular class—scrofula proper, tabes, and hydrocephalus. The certificates sent to the registrar

cannot be so much relied on here for accuracy as in the case of consumption. But the errors must be nearly equable for such parts of the Register as I require to use for the main facts. The proportion of deaths caused in all Scotland by scrofula, tabes, and hydrocephalus together, is, for every hundred thousand persons, 960, being a little more than $4\frac{1}{2}$ per cent. of the total mortality. But the inequality of the distribution of these deaths between town and country is extreme. In Glasgow, for example, the proportion in one hundred thousand is 177; in Edinburgh, 96; in the six Lowland agricultural counties, 32; in Berwickshire, singly, 21. Where a pure and rich agriculture predominates, the havoc caused by these disasters is reduced almost to a sixth of what it is in a great town, such as Glasgow; and in the purest of rich agricultural districts it is brought down even to a ninth.

The tribe of malignant diseases are supposed by some to take the place after middle life of hydrocephalus, tabes, and consumption, whose season is from infancy to confirmed manhood; and therefore the former have been considered to belong, like the latter, to the developments of the scrofulous or tubercular habit of body. In that case it might be expected of them that they should follow the law of prevalence, which rules tubercular diseases proper. The Register unfortunately cannot be used to test this conclusion closely. The greater part of malignant diseases are concealed in the Register under the head of other diseases. Cancer, the only heading for them, accounts almost exactly for $1\frac{1}{2}$ per cent. of the mortality. But at least as much lurks under the heads of chronic diseases of the stomach, liver, bladder, kidneys, and womb; another set, at least as numerous, are returned under old age, atrophy, and dropsy; and, on the whole, the entire tribe cannot be reckoned under 6 per cent. of the general mortality. For estimating their comparative prevalence in different circumstances, the only returns which can be safely used are those under the head of cancer. The result is quite at variance with the law for tubercular diseases. Town and country seem to share alike in the inflictions of this grim visiter. But the details are so contradictory to one another, that the data appear unsafe. Thus, in a hundred thousand people the number for all Scotland is 29; for the six Lowland agricultural counties, 35; for the six largest towns, 29; for the four last of these—Aberdeen, Dundee, Paisley, and Greenock, 26; for Edinburgh, 54; for Glasgow, 18. On the whole, it would appear that town life cannot be charged with the evil of fostering malignant diseases; and their causes, whether original or accessory, still remain to be discovered. But it is very different with the much more numerous tribe of tubercular diseases. In a first-class town, such as Glasgow, tubercular diseases account for 20 per cent. of the total mortality; in an agricultural county like Berwick, for 8 per cent. only. In a given number of townspeople at least four die of tubercular disease for one in the same number of countrymen. Nor is this all the evil which life in a

great city must lay at its own door. Tubercular diseases mainly are at once the cause and the test of the deterioration of a race in physical excellence. This mishap, though a more hidden consequence than an increased death-rate, is one no less sure to follow; and it is in the long run even worse for the wellbeing of a nation.

Philanthropists and legislators, in dealing with the unhealthiness of towns, have, until lately, had chiefly to do with epidemic diseases as their main source of excessive mortality. But it is apparent that tubercular diseases are a still more serious source of destruction. It is also most probable that the abatement of their ravages will need a different description of measures from those which have been proved to be serviceable against diseases of the epidemic class. The discovery of the necessary measures is a duty which it peculiarly becomes this Association to press upon the Government of the country, and also upon the great, the wealthy, and especially those whose business of life it is to amass wealth through the labour of the working classes, and whose requirements have occasioned the concentration of the people in overgrown towns, with all its concomitant evils.

On considering the whole circumstances attending the development or the circumscription of tubercular diseases, as brought out by a scrutiny of the Scottish Register, and adding the reflections drawn from long professional experience, I cannot at present see any more probable source of the fearful growth of these diseases in great towns than the want of open-air exercise. Several excellent inquiries have been published, which point to certain trades as greatly contributing to develop tubercular diseases. A systematic general inquiry of the same kind might bring to light the fact that it is only a few trades which have to account for the high town mortality; and then our course would be clear and simple. But I confess I have no hope of so simple a solution of the problem. All special inquiries hitherto made, except in the instance of one or two trades which have a special evil of their own to contend with, point in the same direction for the cause of concentration of tubercular disease in great towns—viz., a conjunction of defective exercise and exclusion from the open air. If this prove, on a more extended inquiry, to be the great or universal cause of evil, there is no remedy within reach except the spreading out of a city, the finding lungs for it in the shape of parks and gardens, the surrender to the working classes, and, above all, to the sedentary trades, of a proportion daily of that time which is now too entirely demanded of them for the toils of their craft, and the creation among them of a taste for the active exercises which were the pastimes of their ancestors. Something has been doing lately in this direction by philanthropists, who have felt a necessity for action through a species of instinct, or through general observation of the present fitness and unfitness of things; and every now and then we have to record the generosity of an individual thinker and actor in this field. But we have now

before us, from sundry quarters, such precise and concurring evidence of the enormous extent of evil arising from the present mode of town life among the working classes, that, looking especially to the still increasing growth of our already overgrown great towns, and the stationary or rather retrograding numbers of our rural population, there is loud call indeed for public, systematic, extensive, though it may even be costly, ameliorations.

I am very unwilling to quit the deeply interesting subject of constitutional diseases, with which I propose to conclude my remarks, without adverting shortly to a most remarkable fact which has been lately made a matter of controversy relative to the circumstances which influence the dominancy of the most important of them all, consumption. I will therefore crave your attention for a very short time longer, because I have it in my power to throw a little light upon the question.

In 1848, an intelligent young practitioner of the Island of Lewis, when he graduated at Edinburgh, wrote a thesis on the medical topography of the island, for which he was awarded one of the University medals of the year. In this thesis the author, Dr Macrae, mentioned that in his experience he had never met with the disease, pulmonary consumption, in any islander. The statement excited great surprise at the time, but was lost sight of soon by most people, though never by myself, to whose share the thesis fell for examination. As soon as the Scottish Register was established, I asked Dr Stark, the Medical Registrar, to look into the matter; but an insufficient staff prevented him from doing so till the "Detailed Report" for 1855 was undertaken and published so lately as 1861. Dr Stark there takes up the question; speaks of a "tradition" prevailing in the Western Isles as to their exemption from pulmonary consumption; notices the fact that one medical gentleman had confirmed the tradition; but says that the Register does not bear out the proposition; at the same time acknowledges that the returns are so incomplete, and the term consumption so vaguely used in the Isles, as to render the Register an unsafe guide; and, after all, thinks he can make out, after proper allowance for errors, that consumption is very decidedly less frequent in the Isles than in Scotland at large. I find, however, that the Register itself positively proves consumption to be still less frequent in the rich agricultural lowlands of Scotland than Dr Stark has made it out to be, with allowance for errors, in the Western Islands. But the truth is, the returns to the registrar from these islands are so very faulty, that, after looking carefully into the subject, it appears to me they are wholly unfit for use in such a question.

I therefore referred again the other day to Dr Macrae, begging to know his ulterior observation upon a much larger experience than in 1848. He replies, that he continues to obtain the same result; that consumption in Lewis is almost entirely confined to strangers temporarily resident there, and to natives who have resided and

contracted the disease elsewhere, chiefly as domestic servants in the southern towns of the mainland; and that natives who stick to the island are exempt from the disease, except in a few rare instances, where it had been brought on under long privation of food and exposure to cold. Adverting to the defects in the Register, and the jumbled mode of using the term consumption in the returns, he adds, that he investigated the reported cases for the last three years in the Stornoway district, which contains a population of 8500 inhabitants; that the total deaths were 444, or 1 in 61; that 24 deaths from consumption were registered; that every case had been seen at one period or another of its course by a medical man, so that he could trace it out accurately; that 8 of the 24 proved to have been bronchitis—a common mistake; 2 tabes, and 1 dropsy; that of the 13 true consumptions 5 were residents from the mainland, and 4 native servants who had returned ill of the disease from service in Glasgow. Thus we have only 4 cases in three years among the true resident natives of the island, or 16 only in 100,000. I have similar testimony from a very able authority in another island, Dr M'Coll, of Mull, who brings the experience of thirty-three years to the inquiry. He informs me that in his island, which contains 12,000 inhabitants, he has scarcely ever known consumption occur, except among immigrants bringing with them the constitution of the mainland, or natives who had gone thither early to contract it, but returned to die on the soil of their birth.

I do not know a more interesting fact in the whole statistics and pathology of this melancholy disease than the apparent exemption of our western islanders from it. Nor is there any limited statistical inquiry more worthy of being encouraged by our association, and satisfactorily cleared up as to its amount and causes, than this wonderful immunity, which is now no mere "tradition."

I feel that I must apologise to this meeting for having detained it so long with a somewhat excursive inquiry. More especially ought I to do so, because I do not claim to have brought before you anything positively new, at least of the nature of general principles. My purpose was to revive some old principles concerning public health, which have been latterly kept rather in the shade, to illustrate them and others by placing them before you in a new and stronger point of view, and to confirm prior observations by my own. I shall be content if I may be thought to have succeeded in some measure in these objects.

ARTICLE IV.—*Case of Ovariotomy.* By WILLIAM CROCKATT, M.D., F.R.C.S.E., Surgeon to the Dundee Royal Infirmary.

JANET SQUERS, æt. 37, of spare habit of body, was admitted into hospital on the 6th July 1863. She had been fourteen years married; her first child was born at the full time, and her recovery from that accouchement was satisfactory. During the next two years she had four abortions in succession, the first being about the third or fourth month, and the others at the second month of utero-gestation. In November 1853, she gave birth to another child at the full time, and since then (*i. e.*, for the last ten years) she has not been pregnant. She stated that for two weeks before the last confinement she had pains every day, and that her labour, though not a long one, was very painful, and that her recovery was slow and unsatisfactory. During the labour and convalescence she was attended by a midwife. After recovery, she felt no particular pain on either side, but a feeling of weakness in the lower part of the abdomen; neither then nor subsequently up to the present year, was she conscious of the existence of any tumour. During this time her health was very good, so much so that she maintained both herself and husband, who was dissipated and unkind to her. About the middle of May 1863, she felt for the first time a swelling on the right side of the lower part of the abdomen, freely movable, and about the size of her closed hand. On the 2d of July last, she was seized with a sudden pain in the right iliac region, and a sensation as of something jerking or giving way; and from that time the pain became much aggravated, and increased with the growth of the tumour, which also then received a sudden impulse. Her catamenia had up to the present time been pretty regular, although once, about a month ago, a week after menstruation, she had a rather severe flooding, which lasted for some days. She has had for the last year or two a feeling of weight at the lower part of the abdomen, and a yellow, persistent, but not copious vaginal discharge, which ceased during each menstrual period, and then reappeared. Her decubitus was almost constantly on the left side, and for that reason the tumour, which she described as originating on the right side, appeared rather to belong to the left. The tumour was tense and fluctuating, but its painfulness rendered it intolerant of free manipulation.

Measurement.—From one anterior superior spine of the ilium to the other, over the umbilicus, is 24 inches. Circumferential measurement, one inch below umbilicus, is 35½ inches.

Patient sleeps very little, and describes her sufferings as "awful." Has had some degree of difficulty of breathing for the last year or two.

7th August.—Since admission has been taking small doses of the iodide of potassium. Feels not so well since yesterday. Dyspnœa much greater; wheezing and sonorous râles heard over both lungs;

percussion normal. Pulse 100, and weak; cardiac sounds normal; skin hot; tongue slightly furred and dry; appetite impaired. Stop mixt. potass. iod. To have a warm water enema and the following mixture:—R. Vini antim. sp. æth. nit., ā ā ℥ss.; Aq. ammon. acet. ℥ij.; Aquæ ad. ℥viij.—M. ℥ss. every second hour.

8th August.—Bowels were opened, but not freely, by the enema; skin somewhat cooler, tongue moist.

9th August.—Feels much better. Stop the mixture: to have a dose of castor oil.

10th August.—Bowels moved freely by the castor oil. Skin quite cool; tongue moist and clean; pulse 92. To have ℥iv. wine. Patient anxious for the operation.

11th August.—Has slept a little during the night. Pulse 92. The patient being in as favourable a condition as it was likely she would be for operation, I performed ovariectomy to-day with the concurrence and assistance of the medical and surgical officers of the hospital. Many practitioners of the town were also present. The room was heated to 72° Fahr. The patient was put completely under the influence of chloroform, and the bladder having been emptied by the catheter, the operation was commenced at 11.25 A.M. An incision six or seven inches in length was made in the linea alba from about 1½ inches below the umbilicus, to about two inches above the pubis. The dissection through the parietes was carefully conducted, and the peritoneum was opened at the upper part of the wound, when a small quantity of serous fluid escaped from the abdominal cavity. The peritoneum was then divided through the whole extent of the incision, and the cyst brought fairly into view. The finger was introduced between it and the peritoneum, and the adhesions, which were slight, were gently separated, until the whole hand could be introduced and moved freely round the tumour. The multilocular nature of the cyst was now evident, and a considerable quantity of glairy fluid escaped externally by the accidental rupture of one of its loculi. The most prominent part of the tumour was punctured by the "drainage trochar," and a large quantity of fluid, both gelatinous and puriform was drawn off, some also escaping by its side. The tumour was then fairly turned outside the abdomen. The omentum and some of the small intestines were found adherent to the lower part, near the pedicle, but were easily separated by the finger. The clamp was then applied, and the pedicle divided at 11.36. The abdominal cavity was then carefully sponged and cleansed with tepid water. There was slight oozing of blood from the peritoneal surface, where the adhesions existed. The edges of the wound were then placed in apposition, and retained by six needles, and twisted suture; the wound being entirely closed, except at the lower part, where the pedicle projected. Lateral pads were placed beneath the ends of the needles, and a piece of lint being placed over both, a flannel bandage was tightly applied over the abdomen,

and the patient was put to bed at 11.55, the whole time occupied having been exactly half-an-hour.

The tumour was examined after removal, and was found to be a multilocular cyst, some of the loculi being filled with fluid of a clear gelatinous consistence, others with a puriform grey liquid. The solid framework of the cyst, after being drained and squeezed, weighed 1 lb. 9½ oz. The contents weighed about 7 lbs. or more, allowing for what was spilt; gross weight being 8 lbs. 9 oz. at least.

During the operation the patient's pulse rose from 92 to 126, and at that time was very weak. After recovering from the chloroform she took a little brandy and beef-tea, which were ordered to be given in small quantities from time to time. After the operation the pulse gradually became stronger, and at 12.30 it was 108. At 1 P.M. pulse 104. A suppository containing 2 grs. of morphia was introduced into the rectum. 2 P.M.—Pulse 104. 3.30 P.M.—Pulse 100. At 3.40 P.M. retching and pain in stomach complained of. To have ℞xxv. sol. mur. morphiæ. 4.30 P.M.—Fell into a slumber which lasted fully half-an-hour. 5 P.M.—Pulse 104. No retching. 8 P.M.—Slight retching and pain in belly. Pulse 108. 9 P.M.—Pulse 110. 10 P.M.—To have ℞l. sol. mur. morphiæ.

12th August, 2 A.M.—Vomited last draught: to have ℞xxx. sol. mur. morphiæ. 8 A.M.—To have ℞l. sol. mur. morphiæ. 10 A.M.—Pulse very weak, 120. Sickness and retching during the night; vomited matters being of a dark colour. To have small pieces of ice from time to time. Urine drawn off by the catheter. 12 A.M.—To have ℞xxx. sol. mur. morphiæ. 7.30 P.M.—Complains of burning heat at stomach. Still retching, but not so frequently; matters vomited sour. Aspect rather better. Slept for an hour during the afternoon. Pulse up to 128. To have ℞xxx. sol. mur. morphiæ and ℥ss. aq. calcis occasionally. 9.30 P.M.—Patient is weaker. Vomiting rather aggravated. To have ℞xl. sol. mur. morphiæ. 11.30 P.M.—Last draught has been vomited. Complains of sickness and pain at epigastrium. Tympanitis over stomach; the rest of the abdomen soft and free from pain on pressure. Turpentine stupe to be applied over epigastrium. Repeat draught.

13th August—2 A.M. Vomited last draught, which was repeated; appears to be no worse; has since had a sleep. Tympanitic state of stomach continues, but the rest of the abdomen soft and free from pain. Flannel cloths wrung out of hot water to be kept applied over epigastrium and retained. 10.30 A.M.—Wound dressed; its appearance is perfectly satisfactory, adhesion having taken place throughout; no oozing from incision or where the needles are inserted. To have a nutrient enema of beef-tea, brandy, and arrow-root, and soda water for common drink. 12.30 A.M.—Another nutrient enema was administered and retained; up till now has not vomited since 9.30. A.M. Soda water is grateful to patient. 2. P.M.—Another nutrient enema administered; pulse much better,

120. To have $\mathfrak{m}l.$ of Battley. 5.30 P.M.—Has slept for more than an hour, no vomiting since morning; but has occasional hiccup. To have the following draught, $R.$ Spt. ammon. ar. æth. chlorici, $\bar{a} \bar{a}$ 3ss.; Tr. cardam. co. 5j.; Aq. 3ss.—M. During the day has urinated twice, the first time in bed, the second time by her desire in a vessel. To have a nutrient enema and brandy and soda water for drink; pulse 112.

14th August—1 A.M. No pain or tympanitis of abdomen; no vomiting since yesterday morning, but hiccup continues troublesome, and subsultus tendinum with jerking of whole of upper extremities has commenced. To have another nutrient enema and $\mathfrak{m}l.$ of Battley by the mouth. 4 A.M.—Continues much the same; has not slept since last report. To have $\mathfrak{m}xxx.$ Battley. 5 A.M.—A nutrient enema administered. 8 A.M.—Breathing has now become laboured and slow; subsultus and jerking of upper extremities increasing. No vomiting, but hiccup continues. Muscles of the neck rigid. Has taken a little brandy and milk. 9.40 A.M.—Died.

Section cadavaris ten hours after death. The body was opened by the usual longitudinal incision, the abdominal part being about an inch to the left of the wound. The wound was united in its entire extent, except at the lower part where the pedicle projected. Both lungs were found slightly adherent. Anterior margins of both, and also inferior margin of right lung, were emphysematous. Both lungs were cedematous, but especially the right, otherwise apparently healthy. Heart normal. Colon was found distended with air; its transverse portion was found slightly adherent to parts of the ileum, and also to the abdominal peritoneum midway between umbilicus and pubis, and by that means the stomach was made to occupy a position lower than normal. At the seat of wound there were no adhesions, but immediately to the right side of it the small intestines were slightly adherent by recent lymph to part of the abdominal peritoneum where formerly it had been adherent to the tumour; no general peritonitis; no fluid or clots of blood in abdomen or pelvis; slight effusion of blood within the layers of the great omentum at its right corner (which was separated from the tumour near the pedicle during the operation). Stomach healthy; liver fatty; gall-bladder empty; kidneys and spleen healthy; uterus slightly hypertrophied; right ovary normal.

I have the more readily brought this case, though unsuccessful, before my medical brethren, as I agree with Dr Buchanan of Glasgow, that it is only by comparing the unsuccessful with the successful cases that a true estimate of the value of the operation can be formed.

The most remarkable feature in the progress of the case was the rapid growth of the tumour; for up to the time of the operation, according to the patient's statement, hardly three months had elapsed since she first felt it. Latterly, it produced considerable disturbance

of her general health, and caused from time to time feverish attacks which weakened her very much. The case also shows that too much reliance cannot be placed on the patient's sensations, for she persistently stated that she felt the tumour on the *right* side of the abdomen, although it belonged to the *left*. On physical examination, it appeared to be situated to the left side, but this I thought might be accounted for by her decubitus being constantly on the left. The uneasiness and pain which she endured rendered her life very miserable, so that her mind was made up to submit to anything which could be done for her relief, and the operation and its attendant danger having been fully explained to her, she was anxious that it should be performed. As far as could be judged, it seemed a very favourable case for operation; the tumour never having been tapped, there was less chance of strong adhesions, and this afterwards proved to be the case, the tumour being easily removed.

On post-mortem examination, nothing was found which properly accounted for death, it having apparently occurred from shock and exhaustion caused by the retching, which was the most troublesome symptom after the operation.

I take this opportunity of acknowledging the great care and attention bestowed on the case by Dr William Jobson, the interim medical superintendent.

ARTICLE V.—*On Dilatation of the Lacteals.* By T. GRAINGER STEWART, M.D., F.R.C.P., Pathologist to the Royal Infirmary; Lecturer on General Pathology and Pathological Anatomy, Edinburgh.

THE peculiar lesion which I propose to describe is one of so rare occurrence that I do not find it mentioned in any English work on morbid anatomy, though it was referred to by Rokitsansky in his last edition. I shall first describe the case in which it occurred, and then explain my view of its nature.

S. M., a man æt. 60, was examined August 28, 1863. The body was very œdematous, the heart was hypertrophied and fatty, the aortic valves much diseased, and covered with vegetations. The auriculo-ventricular orifices were dilated, and the valves diseased.

The coronary arteries were tortuous and atheromatous. The aorta contained some calcareous plates and patches of atheroma.

The pleuræ were adherent—the adhesions very œdematous. The lungs were emphysematous in front, œdematous posteriorly, and contained some patches of pulmonary apoplexy. The liver was much congested, and somewhat cirrhotic—the hepatic venous radicals were dilated:—it weighed 52 oz. The capsule of the spleen was thickened. The right kidney was natural, excepting an old cicatrix.

The left contained several cysts, none of large size. The two organs weighed 16 oz. The stomach was dilated. The muscular layer was hypertrophied in the neighbourhood of the pylorus. The mucous membrane was extremely congested, and in some parts ecchymosed. Towards the cardiac end there were patches of a yellowish colour, perhaps results of old extravasation. The intestine throughout its whole extent was congested. In many parts the small veins formed little prominences above the surface. There was a polypus in the ascending colon. Scattered throughout the whole small intestine was a number of whitish-yellow patches, varying in size from that of a pin-head to that of a small bean. Some were granular on the surface, and evidently connected with the mucous membrane; others were smooth, rounded, and lobulated like little fatty tumours, and evidently lay in the submucous layer, for by a little careful dissection they could be separated from the mucous membrane on the one side, and from the muscular layer on the other; a third set, again, much less frequent, consisted of a combination of the other two. On microscopic examination, those of the first kind were found to be made up of groups of villi greatly distended, as in the process of digestion—they were dark and opaque. On tearing them, a milk-like fluid escaped, which presented microscopically the characters of milk or chyle. The villus then collapsed, and there was no appearance of the bloodvessels having been distended; and indeed it was obvious that the whole enlargements depended upon the presence of the milk-like fluid. As this is the matter naturally present in the lacteals during digestion, and as these take origin in the villi, we seem to be warranted in concluding that this class of patches results from the retention of chyle in the blind extremities of the lacteal vessels of a number of adjacent villi. The whitish-yellow colour arose from the chyle shining through the coats of the villus, and the granular appearance of the surface from the patch being composed of numerous villi. Those of the second kind resembled small fatty tumours, and were situated between the mucous and muscular coats. Some consisted of a single lobule, others of several. On pricking any of them, a milk-like fluid, closely corresponding to that above described, but containing in addition cell-like aggregations of fatty granules, flowed out, and the walls of the particular lobule collapsed. I could not satisfy myself as to the structures of the bounding walls; but some of the patches presented peculiar elongations from the main mass, like tails proceeding from the body, which evidently consisted of some tubular structure. But these did not pass into bloodvessels, nor did they seem to bear any special relation to them, and were therefore to be regarded as portions of lacteal vessels. On the whole, from the character of the contained fluid, the structure and appearances, and the observations previously made, we may conclude that these patches consisted of dilatation of the small lacteal vessels.

Only one theory as to the origin of this lesion occurs to me—namely, that the extreme backward pressure upon the blood, which arose from the disease of the heart and lungs and the general dropsy, acted upon the lymphatic vessels also in some unexplained way, and led to their distention at some points. This view is in accordance with all the facts observed, the chief of which were recapitulated in the account of the examination of the body. I regret that I neglected to ascertain the condition of the thoracic duct, the large lacteal vessels, and the mesenteric glands. It arose from my not having noticed the patches till the intestines were removed, nor suspected their nature until it was too late to investigate the other points.

The only case which I find closely corresponding to this is one recorded by Rokitsky in the last edition of his *Pathological Anatomy*,¹ of which case I subjoin an abstract.

In a nun, 62 years of age, with oedema of subcutaneous cellular tissue, and very considerable effusion of a milk-like fluid, in both pleural and the peritoneal cavities, with dilatation and hypertrophy of the heart, thickening and shortening of the mitral valves, with thickening of the mucous membrane of the stomach in the pyloric half, and the walls of the intestine white and swollen, the subpleural lymphatic vessels were distended, still more the chyle vessels and the thoracic duct. They presented, from the bowel to the first series of lymphatic glands, knot-like dilatations, full of a white soapy or greasy looking matter, which became diffused in water. It consisted of fatty granules, some of them agglomerated into cell-like bodies, crystals of margarin and some apparently nucleated cells. In individual places the mass was more yellow, and adhered to the walls of the vessels. In the lymphatic glands there were similar small deposits, and in the thoracic duct there were some dilatations.²

Such is the only case in which I find a closely corresponding lesion described, but there are several cases on record in which a dilatation existed in other parts of the lymphatic system. Carswell and Breschet both describe one in which there was an enormous congenital dilatation of the lymphatics from both groins upwards.³ H. Lebert, in his work on the diseases of the lymphatic vessels and glands,⁴ mentions a number of cases of dilatations of the lymphatic vessels from the works of Baillie, Sæmmering, Cruveilhier, and others, and gives one or two at length. One originally recorded by Dr Fetzner of Stuttgart, was that of a young girl in whom there was a dilatation of the lym-

¹ Rokitsky's *pathologische Anatomie*, band ii. s. 388.

² Dr Craigie informs me that he, on one or two occasions, during the cholera epidemic, found the lacteal vessels distended with a whitish fluid, in bodies of those who had died from the disease.

³ Carswell's *Pathological Anatomy Hypertrophy*, Plate iii.

⁴ Virchow's *Handbuch der speciellen Pathologie und Therapie*, band v. Abtheilung ii.

phatic vessels of the abdominal wall from the umbilicus to the spinal column on one side. There were about eighteen little tumours which, from time to time, became painful, and at once relieved themselves and demonstrated their nature by discharging a milk-like fluid.¹ In a case recorded by Demarquay, there were on the left thigh groups of transparent vesicles, which were ascertained to consist of varicose lymphatics. The vesicles ultimately burst and discharged a large quantity of lymph.² Lebert himself observed a case, in Schönlein's Clinique at Zurich, in 1833. I quote his account of it:—"In the summer of that year I saw a young man, twenty-one years of age, in whom, from time to time, there appeared on the thigh and scrotum little transparent vesicles, which filled and then burst, discharging at one time a whey-like at others a milk-like fluid. The skin of the scrotum was in general hypertrophic. The fluid was afterwards examined and found to contain milk-sugar, but I am now decidedly of opinion that the case was one of lymphatic varices and dilatations; because, very recently, Guevenne found sugar in the lymph of a patient who suffered from a flow of lymph."³ Lebert also refers to a case recorded by Zamini, in which the chemical analysis was made by Canobio, in Genoa, of a woman who had a so-called flow of milk from the thigh, and which he refers to a similar dilatation of the lymphatics.⁴

I had recently an opportunity of seeing a case similar to the two last, which is under the care of my friend Dr Andrew B. Buchanan of Glasgow, in which there has for long existed an abundant milk-like discharge, an account of which will shortly be published.

Virchow has described a case in which enlargement of the tongue was proved to be dependent, to a great extent, on dilatation of the lymphatic vessels.⁵

Such are the chief recorded instances of dilatation of the lymphatic vessels, so far as I have been able to ascertain. I have referred to most of the cases I have found described, although I am by no means satisfied that all of them are correctly included under this title. Of the nature of Rokitansky's case, and that which I have reported, there can be no reasonable doubt.

Whether any symptoms are associated with the lesion I have described, we have no means of knowing at present. Future observation may throw light upon it.

¹ Lebert, *op. cit.*, p. 134. ² Lebert, *op. cit.*, p. 134. ³ *Op. cit.* ⁴ *Op. cit.*

⁵ Archiv für pathologische Anatomie, etc., band vii. s. 126.

ARTICLE VI.—*Spurious Diphtheria : Its Nature and Treatment.*

By G. STEVENSON SMITH, L.R.C.S. Ed., Letham, Fife.

MUCH confusion is often caused, and many hindrances to the advancement of medicine are thrown in the way, by a loose and indiscriminate application of names ; it ought, therefore, to be the aim of every one who has the interests of his profession truly at heart, to attain to clear and distinct ideas as to the nature of disease, so that he may at all times think, and judge, and act, with precision. And one way in which we may assist in clearing up matters is, by studying diseases which are allied to each other, and by carefully observing and pointing out the distinguishing characteristics of each.

My object at present is to direct the attention of the profession to an affection which, in many respects, resembles diphtheria, and may be mistaken for it, but which, it will be found, differs essentially from that disease, both in its nature and its results.

During the prevalence of an epidemic, it is usually noticed that there is a strong tendency to a particular form of disease. When cholera prevails, for example, there are always many cases of severe diarrhoea and vomiting, which get well, and the true characteristics of the epidemic affection never become fully developed ; in these there is a tendency to cholera, but it would be a misapplication of terms to call them real cholera cases, and so it is, I believe, in epidemics of diphtheria. Throat affections have a tendency to take on this form of disease, and many, many cases which are called diphtheria, and are even treated as diphtheria, are, I am convinced, merely examples of the affection I am about to describe.

How otherwise can we account for the apparent success of one practitioner in his treatment, and the total failure of another !

We hear of one man curing his diphtheria cases with one remedy, while another is equally successful with something totally different ; but only let the boasted remedies be applied to a really serious case of true diphtheria, the diphtheria which Bretonneau studied so thoroughly, and has so graphically described, and I am convinced they will turn out to be utterly impotent and useless.

It is of importance then to distinguish between the two affections, and I shall now endeavour to sketch the characteristics of spurious diphtheria.

In the course of a recent outbreak of diphtheria, my attention was drawn to a certain class of cases which, while they presented some of the symptoms of that affection, never assumed such a serious nature, or called for such a vigorous plan of treatment, as did those which had previously come under my care.

In the class of cases to which I allude, the patient usually complains first of a curious feeling in the throat, as if a pin were pricking it ; there is languor, with pains in the back and legs ;

and sometimes considerable tenderness on pressure on the outside of the throat, just under the angle of the jaw.

On looking at the throat, the tonsils and the uvula are more or less tumefied, according to the severity or mildness of the case, and of an angry red colour, while on their surface small, irregularly-shaped, yellowish white spots will be observed.

The spots are evidently of an aphthous nature; there may be only one or two on the tonsil or on the uvula, or they may be so numerous as to give to the soft palate an appearance as if some one had shaken a box of white pepper over it.

However great their number may be, I have observed that their edges do not coalesce, each spot is isolated. They never look excavated, but seem as if they just floated on the mucus which moistens the throat.

The appearance of the tongue usually indicates derangement of the digestive system, and the pulse is smaller and more frequent than in health.

The treatment of spurious diphtheria is exceedingly simple—a mild aperient, the tincture of the muriate of iron, in doses of ten or fifteen drops thrice a-day, with a simple gargle of chlorine water, will certainly and speedily cure the throat affection. There may be a good deal of prostration and muscular debility after an attack of this disease, but a liberal diet, and the use of stimulants, if necessary, will soon restore the patient to health.

Aphorisms.—Spurious diphtheria, so far as my observation has extended, never proves fatal. Though accompanied with debility, I have never seen it followed by paralysis or albuminuria; the tonsils sometimes suppurate after an attack. A patient who has suffered from this affection may subsequently be attacked with true diphtheria.

In true diphtheria, gargles are of very little use till the patient begins to recover, but in the disease under consideration their use is always followed by the greatest benefit from the very first. In spurious diphtheria the use of caustics is not required. I do not know how to account for it, but this affection seems to be most prevalent amongst young females.

Part Second.

REVIEWS.

The Renewal of Life: Clinical Lectures Illustrative of the Restorative System of Medicine, given at St Mary's Hospital. By THOMAS K. CHAMBERS, M.D., F.R.C.P., Physician to St Mary's Hospital, etc., etc. London: Churchill: 1862.

UNDER the quaint and somewhat obscure title, "The Renewal of Life," Dr Chambers has brought together about thirty clinical lectures delivered at St Mary's Hospital. Their object is to describe a peculiar system of therapeutics, and to illustrate it by reference to various special diseases.

Dr Chambers begins by showing that the prevalent medical theories, Allopathy, Homœopathy, Evacuation, Counter-irritation, and Stimulation, are founded on imperfect data, and must lead in many cases to unsafe practice. Existing theories having been disposed of, Dr Chambers proceeds to propound his own doctrine in the following terms: "That DISEASE is in all cases, not a *positive existence*, but a *negation*; not a new *excess* of action, but a DEFICIENCY; not a *manifestation of life*, but PARTIAL DEATH; and, therefore, that the BUSINESS OF THE PHYSICIAN is, directly or indirectly, not to *take away* material, but to ADD; not to *diminish function*, but TO GIVE IT PLAY; not to *weaken life*, but TO RENEW LIFE. These are the principles of RESTORATIVE MEDICINE." In spite of this formidable array of italics and capitals, we are not disposed to give in our adhesion to Dr Chambers' doctrine. For, in the first place, we altogether deny that there exists a necessity for a new theory of disease to serve as a basis for our therapeutical system. Rational medicine is not based upon any exclusive theory, and we are confident that it will never be possible to include all diseases under a single formula. And, in the second place, we consider Dr Chambers' doctrine to be incomplete, and consequently erroneous. The doctrine is by no means a new one, and was but recently very clearly brought forward by Dr Inman, in his "Foundation for a new Theory and Practice of Medicine." One of Dr Inman's fundamental propositions was "The presence of disease implies impairment of vital force;" and he stated that the object of treatment being to restore the patient to the standard of health, this must be effected by the use of means which support the vital power. But as we endeavoured to show at the time, any such statement is far too exclusive, and keeps out of view the

¹ See this Journal for December 1860.

important principle, that in disease there is not so much a deficiency as a perversion of vital action. If disease be merely a negation, wherein, we would ask Dr Chambers, does one disease differ from another? Is variety of disease merely a question of degree? And in what scale, according to deficiency of vital power, are diseases to be arranged? Neither does Dr Chambers' theory afford him a sufficient basis for his therapeutical system. His system of treatment theoretically is purely restorative, but practically he resorts to the use of blood-letting, mercurials, sudorifics, purgatives, and other so-called *destructives*. Of course, there is an excuse for the employment of means so different from what we should have been led from the theory to expect, which is stated, it must be allowed, in very plausible terms. "Unlike the allopathist, the restoratist does not use these agents merely as such. By this interference, rationally interposed, our aim is to assist the architect in one half of his duty, and thus contribute in an indirect way towards making him more active in the other half. Or, by the judicious use of Destructives and Arresters of metamorphosis, we in some cases make room for, and in others allow time for, the normal growth of the tissues, and thus are acting up to our principles in making our prime object the Renewal of Life." We perfectly agree with these principles, but we maintain that no one who acts up to them has any right to claim for his system of therapeutics, a special title to be styled restorative. In our opinion, indeed, Dr Chambers' practice is far better than his theory, and while we cannot give our assent to the latter, we have a very sincere respect for the former.

Having laid down his principles, and explained the grounds of his practice, Dr Chambers proceeds to the consideration of special diseases, and commences with the subject of Continued Low Fever. The Lectures, as stated in the preface, being meant to be illustrative of practice only, scarcely anything is said with regard to diagnosis or pathology. We gather, however, from Dr Chambers' statements, that his views as to the pathology of low continued fevers are somewhat peculiar. He makes no distinction between typhus and typhoid fever, but seems to think that they are both manifestations of the effect of a noxious agency to which he gives the name of the *Typh* poison. Perhaps we had no right to expect it; still we could have wished that on this point Dr Chambers had expressed himself a little more fully. The treatment recommended is very judicious. Believing that the usual path by which the fever poison enters the system is the digestive canal, Dr Chambers recommends the administration of an emetic, if the case is seen early enough, with the hope that a portion of the poison still unabsorbed may be got rid of, and that thus the fever may be cut short. When the disease is fairly established, the increased heat and dryness of the surface are to be combated by tepid sponging of the whole body three or four times a-day. Nitrogenous materials are at the same time to be supplied by the copious ingestion of milk and beef tea. Another

point to which Dr Chambers attaches much importance is the administration of acids, which appear to act by neutralizing the ammonia which is formed in excess. The acid chosen is the diluted hydrochloric, and is given in doses of twenty minims every two hours. In reference to the use of this agent, Dr Chambers says, "I have now used it in every case of low fever for four years, and have not lost one of those patients who have taken it for thirty-six hours." As this subject is of much importance, we shall make no apology for referring to Dr Chambers' still later experience as recorded in a paper entitled "Contributions to Therapeutical Statistics."¹ From the opening of St Mary's Hospital, in June 1851, to 12th August 1863, Dr Chambers had under treatment 230 cases of continued fever.

"Of these cases, 109 have been treated on what may be termed 'general principles:' that is to say, they took neutral salines three or four times a-day, with small doses once or twice a-day of hydrargyrum cum cretâ at first, and later in the disease, bark, ammonia, ether, and wine, when these remedies seemed required by the symptoms. Leeches and cupping were employed to the exterior of inflamed viscera as occasion called, and food was administered at the ordinary four daily meal-times. The other 121 have been treated on a uniform plan of continuous nutrition: animal food, in a liquid form, has been given every two hours, day and night, while the patients were awake, and between every dose of nutriment a dose of hydrochloric acid. They have been sponged two or three times daily with tepid water, when the skin was hot and dry; and, in a few cases, leeches or cupping have been used to the exterior of inflamed localities in the abdomen or chest."

These two classes of cases admit of a statistical comparison of the value of the curative means employed, for each series was very nearly continuous, and extended over a considerable time. The following is the result of such a comparison:—

"Of the first series of cases (viz., those treated on general principles),			
9	are entered as	Typhus, and of these there died	4
44	"	Typhoid, " "	16
56	"	Of doubtful or unrecorded type, "	3
<hr/> Total, 109			<hr/> Total, 23

"Of the second series:			
25	are entered as	Typhus, and of these there died	0
52	"	Typhoid, " "	2
44	"	Of doubtful or unrecorded type, "	2
<hr/> Total, 121			<hr/> 4

"For purposes of comparison in a therapeutical inquiry, it will probably be considered right to exclude from the first table two deaths, and from the second table one death, which occurred within two days of admission; for the exhaustion caused by the journey to the hospital in severe cases allows little scope for judging of the action of treatment during that period. This leaves the average mortality under general treatment 21 in 107 = 19½ per cent., or nearly 1 in 5;² under the second method of treatment, by continuous nutriment and hydrochloric acid, 3 in 121 = 2½ per cent., or only 1 in 40.

¹ British and Foreign Medico-Chirurgical Review, October 1863.

² This mortality is higher than is usual at special fever hospitals, being about the same as at the other general hospitals in London.

"I cannot, therefore, avoid the conclusion that the means employed in the cases on the second list are very efficient in preserving life; and that out of every 100 persons attacked by continued fever, from 16 to 17 more may be saved thus than by treating them on general principles.

"The continuous liquid nutriment given every two hours consisted of strong beef-tea and milk, of which together about six pints were administered in the twenty-four hours. The hydrochloric acid was given every two hours in doses of twenty minims of the Pharmacopœal dilute acid in water or eau sucrée.¹ Both food and drugs were seen by the nurses to be swallowed, and not left to the discretion of patients, who, from nausea and occasional delirium, cannot be trusted to help themselves."

These results are certainly remarkable; and though we almost fear that Dr Chambers' success has been exceptional, he makes out a very clear case for the administration of hydrochloric acid. In the administration of alcohol, Dr Chambers is chiefly guided by the condition of the nervous system. Though very valuable in certain cases, it should never be employed as a substitute for the true restorative treatment.

The next Lecture to which we shall allude is that on Rheumatic Fever; and we refer to it, because Dr Chambers recommends what seems to us a very important addition to the ordinary means of treatment. In addition to the use of alkalies internally and externally, and the occasional administration of opium or iodide of potassium, great importance is attached to the maintenance of a uniform temperature. "The patients are bedded in a peculiar fashion. All linen is strictly forbidden to touch the skin. A slight calico shirt or shift may be allowed; but if they possess underclothing only of the prohibited sort, they are better naked. Sheets are removed, and the body carefully wrapped in blankets, which are so arranged as to shut off all accidental draughts from the head. The newest and fluffiest blankets that can be got are used. The bedclothes being put so, are kept so, and students are warned, that when they listen to the sounds of the heart, they must not throw open the blankets, but insert their stethoscope (first warmed) between the folds." The *rationale* of this procedure is thus explained:—

"The rationale of this is very simple. Rheumatic inflammation is an injury to nutrition which is entirely compensated for by the restored function. It passes away and leaves no after sign, no wound, no scar. This is what happens if the part affected is kept perfectly still. But should duties be required of it which it is unequal to perform in its imperfect condition,—should necessity or ignorance lead the patient to keep moving a swollen joint, for example,—then common inflammation is superadded. Then the pain and swelling become fixed, and no metastasis can take place. You see this frequently in the poor working people who, through ignorance of consequences, strive to go on with their employments to the latest minute. Labourers come into the hospital with the disorder fixed in their knees, carpenters in their elbows, laundresses in their wrists; so that you may make a shrewd guess at their trade from the part where the disorganizing inflammation is situated. Pain may be called *par excellence* the proof of beneficent design in God's laws as shown in disease, as

¹ The more elegant fever drink of the late Dr Maton consisted of muriatic acid dissolved in barley-water and syrup of mulberries. I find most patients like plain water best as a vehicle.

a warning to abstain from that which excites it. The pain of rheumatism is a call to voluntary absolute rest. Now, in the joints this is easily obtained, and under any treatment you never see a joint become affected with disorganizing inflammation after a patient has once taken to his bed. But there is one organ whose business admits of no repose ;—the heart *must* keep beating at whatever cost ;—and the heart accordingly is well known to be fatally apt to be struck with common fibrinous inflammation at all stages of the disease. Taking a lesson from what I have noticed in the joints, I try and assist the heart to gain, not of course the Utopia of absolute rest, but the nearest approach that is possible.

"Perhaps you may think that object would be attained by simple confinement in bed and the horizontal posture. But it is not so. Next to jumping and running there is nothing gives the heart so much work to do as change of temperature. Let the physiologist observe the healthy organ, and the physician examine it in a state of disease, and they will find that the addition or subtraction of heat to the surface of the body is accompanied by a longer and stronger stroke as felt by the finger, by a longer and stronger sound as heard by the ear in the cardiac region. What is technically called 'the interval' is shortened ; and thus is encroached upon the only wink of sleep the industrious muscle ever indulges in. What does the accoucheur do who wishes to apply the strongest vivifier to the dormant circulation of a still-born baby? He dashes cold water and cold air on the skin,—he rubs the chest dry and applies hot cloths,—again he dashes it with cold,—making as many changes of temperature as he can. What the accoucheur is so anxious to accomplish, we are most anxious to avoid ; and I feel sure that it is in consequence of guarding patients with rheumatic fever from the influence which variations have over the dependencies of the pneumogastric nerve that the treatment now advised is so successful."

For the result of this method of treatment we shall again refer to Dr Chambers' latest paper :—

"Up to May 1855, no difference was made in the bedding of my patients with rheumatic fever from that of others in the ward ; but after that date they were ordered to be rolled up in blankets, and no linen was let touch the skin. In nearly every case the orders were strictly followed.

"Of 63 *either bedded in sheets, or who had wilfully thrown off their blankets*, 6 contracted newly pericarditis at least, if not endocarditis as well ; 3 had relapses of pericarditis on old cardiac lesions ; 1 had endocarditis alone ; on the whole 10, or nearly 16 per cent., had inflammation of the heart, and 4 died.

"Of 184 *in blankets*, none have contracted newly pericarditis ; none have died ; 1 had a relapse of pericarditis on old cardiac lesions ; 5 had endocarditis alone ; 1 a relapse of endocarditis on old cardiac lesion.

"One of these included cases of pericarditis was brought on during convalescence by the patient being dowsed with cold water for an accidental hysteric fit.

"Not 4 per cent. have had any acute affection of the heart ; when it came it was of a milder character, and was generally to be accounted for by some imprudent exposure.

"That is to say, that *bedding in blankets reduces from 16 to 4, or by a good three-quarters, the risk of inflammation of the heart run by patients in rheumatic fever, diminishes the intensity of the inflammation when it does occur, and diminishes still further the danger of death by that or any other lesion ; and at the same time it does not protract the convalescence.*"

The only other subject treated of by Dr Chambers, to which we can refer, is Pneumonia ; and here, as in other cases, his advice as to treatment is eminently judicious. The advantages of blood-letting are strongly insisted upon. "I believe," says Dr Cham-

bers, "that it is the most powerfully effectual of the agents at our disposal, and that, rightly used, it is the saving of many a life in pneumonia." Its mode of operation is thus explained:—

"The beneficial action of blood-letting in pneumonia is mechanical. It is more a question of hydrostatics than of physiology. The pathology of the demand for its use is as follows:—By the temporary death of a portion of the lungs the blood cannot be quickly enough passed onwards through their tissue; it can run freely as far as the right side of the heart, but there it is stopped;—the throng pressing onward from behind makes matters worse, and thus the balance between the venous and arterial heart is destroyed. You can feel the apex of the organ beating strongly against the ribs, the muscular action being excited by the presence of an unusual amount of venous blood; yet the artery at the wrist is at the same time striking your finger with an imperfect weakened force. Take away some of the blood from the veins, and the balance is restored, the pulse becomes 'freer,' as the technical phrase is; that is to say, the heart being relieved of the undue crowd in the right side, is not arrested in its contraction, but is able to close upon its contents, and supply them steadily to the arteries."

But while blood is thus removed, starvation, and the other items of the antiphlogistic treatment, are not to be enforced. On the contrary, care must be taken that material is supplied in the place of that which has been taken away. With this object, beef-tea and milk are to be administered every two hours, exactly as recommended in cases of fever. Another agent to which Dr Chambers attaches great importance is a large hot poultice. Under its use the dyspnoea diminishes, "the hot fevered skin becomes moist and active, and soon the ribs begin to move again, and air is re-admitted into the previously paralyzed lung-tissue." Wine, also, is of great value, especially when the nervous system shows signs of prostration, as indicated by tremor of the hands, quivering of the tongue, delirium, dry, brown tongue, or a tendency thereto. The following observations indicate Dr Chambers' opinion of the value of certain other agents in common use:—

"I always abstain from giving purgatives in pneumonia. My reason is, because I have observed that patients who have diarrhoea at the same time generally do very badly. And if natural diarrhoea does harm, I infer that artificial diarrhoea does harm also. I prefer to produce constipation by opiates, where it does not already exist. If the rectum gets blocked up with fæces, it is easy to wash it out with warm gruel.

"Blisters, also, have seemed to me to do harm in a few cases where I have seen them employed before the patients came under my treatment. It is usually non-medical persons who put them on, under the general idea that they are good for a cough with pain in the chest.

"Nothing has been said about antimony and mercury, drugs formerly much used in pneumonia. They are destructives, and I cannot see that there is anything to be destroyed in this disease, or that there is anything whose destruction would aid the employment of direct restorative treatment. When I used them I was frequently obliged to leave them off on account of bad symptoms attributable to their agency, and I always felt doubtful if success in prosperous cases could be traced to it."

Among the other special diseases treated of by Dr Chambers, we may mention Anæmia, Pericarditis, Pleurisy, Hydrothorax, Acute

Laryngitis, Pulmonary Consumption, Disease of the Heart, Thoracic Aneurism, Albuminuria, Diabetes, Hysteria, Sciatica, Mortification, and various forms and consequences of impaired digestion. We regret that our limits do not allow us to accompany Dr Chambers in the consideration of some of these subjects; but we trust that we have said enough to satisfy our readers, that in the "Renewal of Life" they will find a store of practical information of no ordinary value. Although we may not always be at one with Dr Chambers in questions of pathology, we have no hesitation in expressing our high sense of his merits as a reflecting and accomplished physician.

Studies in Physiology and Medicine. By the late ROBERT JAMES GRAVES, F.R.S., Professor of the Institutes of Medicine in the School of Physic in Ireland. Edited by WILLIAM STOKES, Regius Professor of Physic in the the University of Dublin. London: Churchill: 1863.

THE names of Graves and Stokes are so inseparably and so imperishably associated with the Dublin School of Medicine, that a work composed by the one and edited by the other must command an unusual degree of interest. The volume before us commences with a short sketch by the editor of the life and writings of Dr Graves. Our only regret in regard to it is, that it treats almost exclusively of the physician, and but very shortly of the man. From this portion of the work we make two extracts, the first consisting of an enumeration of some of Graves' principal contributions to practical medicine; the second, descriptive of his meeting with Turner, the great landscape painter.

"1st, The employment of food and stimulants in fever, even from its earlier periods; in other words, their use by anticipation.

"2d, The exhibition of the acetate of lead conjoined with opium in spasmodic cholera.

"3d, The development of the laws of pathological reflex action, as given in his Lectures on Paralysis, in which he has anticipated the views of Marshall Hall.

"4th, The employment of tartar emetic and opium in the delirium and insomnia of typhus fever.

"5th, The method of operating for the evacuation of hepatic abscesses by promoting adhesion between the hepatic and parietal peritoneum.

"6th, The observation of the latent periodicity in intermittent fevers.

"7th, The demonstration of the independent action of the capillary system in health and in disease, and the practical applications of this doctrine in the treatment of disease.

"8th, The account of the yellow fever as it appeared in Dublin in 1826.

"9th, The observations on symmetrical diseases.

"10th, The nature and functions of the lymphatic system.

"11th, The influence of position on the pulse, in health and in disease.

"12th, The description of the disease lately termed *Exophthalmia cachectica*."

"Graves was travelling by diligence, when, in one of the post stations on the northern side of the Alps, a person took a seat beside him, whose appearance was that of the mate of a trading vessel. At first, no conversation took place between them, but Graves' curiosity was soon awakened by seeing his fellow-traveller take from his pocket a note-book, across the pages of which his hand, from time to time, passed with the rapidity of lightning. Overcome at length by curiosity, and under the impression that his companion was perhaps insane, Graves watched him more attentively, and discovered that this untiring hand had been faithfully noting down the forms of the clouds which crossed the sky as they drove along, and concluded that the stranger was no common man. Shortly afterwards, the travellers entered into conversation, and the acquaintance thus formed soon became more intimate. They journeyed together, remaining for some time in Florence, and then proceeding to Rome. Graves was himself possessed of no mean artistic powers, and his sketches from nature are full of vigour and truth. He was one of the few men in whose company Turner is known to have worked. The writer has heard him describe how, having fixed on a point of view, he and his companion sat down, side by side, to their work. 'I used to work away,' he said, 'for an hour or more, and put down as well as I could every object in the scene before me, copying form and colour, perhaps as faithfully as was possible in the time. When our work was done, and we compared drawings, the difference was strange; I assure you there was not a single stroke in Turner's drawing that I could see like nature; not a line nor an object, and yet my work was worthless in comparison with his. The whole glory of the scene was there.' The tone and fire with which Graves uttered these last few words, spoke volumes for his sympathy with, and his admiration of the great painter of nature.

"At times, however, when they had fixed upon a point of view, to which they returned day after day, Turner would often content himself on the first day with making one careful outline of the scene. And then, while Graves worked on, Turner would remain apparently doing nothing, till at some particular moment, perhaps on the third day, he would exclaim, 'There it is!' and seizing his colours, work rapidly till he had noted down the peculiar effect he wished to fix in his memory. It is a curious fact, that these two remarkable men lived and travelled together for months, without either of them inquiring the name of his comrade, and it was not till they reached Rome, that Graves learned that his companion was the great artist."

The "Studies" themselves are divided into two groups,—the first comprehending the physiological, the second the miscellaneous essays. Among the more important of the former group may be mentioned, "The Position of Man in the Scale of Life;" "Distinctive Characters of Man;" "Faculties and Instincts of Man;" "Laws of Periodicity;" "Temperament and Appetite;" and "General Principles of Dietetics." Among the miscellaneous essays we find papers on "The State of Medicine in European and Asiatic Turkey;" "The Progress and Contagion of Asiatic Cholera;" and "Liebig's Theories of Animal Heat and of Disease."

The great majority of these papers were written between 1830 and 1840, and, of course, upon a number of points the progress of science renders necessary a modification of the conclusions come to by their author. Still, they are well worth reading for their own sake; and they have (to use the words of Dr Stokes) "an especial value, as showing how the mind of a great physician dealt with physiology in its true relations to medicine."

The Social Evil and the Army. The Daily News, &c.

WE find a leading article in the *Daily News* of 5th September 1863, on the moral improvement of the army, in which the writer enunciates opinions which may be classified thus:—

1. That a special system of quarantine affecting prostitution is undesirable, as being a police recognition “and legal protection of vice,” thereby imperilling “the distinctive honour and privilege of our country and people,—the adoption of the family as the basis of society,” . . . and as being likely to entail increased expenditure.

2. That the Government have not as yet taken sufficient measures to diminish temptation among soldiers, by affording them rational employments and means of recreation to occupy their time.

3. That the Government are bound to promote the welfare of the soldier, by insuring him the personal and moral advantages which accrue from pure air, wholesome food, quiet sleep, and due exercise of body and mind,—the natural inference from such a statement being, that the soldier has up to this time failed to receive proper care at the hands of the authorities.

4. That army medical officers are unsuccessful in the treatment of venereal diseases.

We propose to examine briefly these opinions, with a view of pointing out the fallacies they entail, and the errors of fact which they enunciate.

1. It is in vain to deny that prostitution is an unavoidable occurrence in our present state of society. Every person who has given the subject a thought, must admit as much, however deeply he may deplore the evil. Attempts have been made in some foreign armies to suppress the social evil, but with the most disastrous and demoralizing results; and they have in consequence been abandoned, and a system of surveillance adopted as the most efficacious method of mitigating what has proved to be a necessary evil. It is highly unfair to stigmatize a system of surveillance as affording a legal protection to vice. Such a system is in no way a legal protection to vice, unless it be attended by a special taxation, producing revenue, of the votaries of prostitution. We must discriminate between protection of the public from the effects of vice, and protection of vice itself.

Up to this time the indiscriminating denouncers of prostitution in the abstract have failed to suppress it, or even to point out any practical method by which it may be suppressed. It seems not unreasonable to ask them to be content with their utter failure to alter the passions of enforced celibates, and to allow, even if they will not encourage, the Government to take the necessary steps in mitigation of the consequent evils.

There are two classes to be looked to in the matter: the unfor-

fortunate females themselves, frequently the victims of male profligacy, and too often the victims of a state of society which precludes them from honest remunerative employment; and the unmarried male population, in most instances condemned to celibacy by the exigencies of a high state of civilisation. Taking an impartial view of the subject, we may fairly assume that the conditions of civilized society have in a great measure led to the deplorable necessity for this evil. The country has benefited to an incalculable extent by civilisation, and is morally responsible for the mitigation of the evils attending its prosperity. If the Government can suppress those evils altogether, so much the better; if it cannot, it is to the interests of the whole population and of the empire that this particular evil should be rendered as little harmful as possible. It may be said that all adults should marry. As regards the males themselves, the struggle for existence is so stern, that marriage, in too many instances, would be followed by the rearing of a pauper population, to be thrown on the parochial funds. For the females, it is well known that they must first be asked to marry, that the momentous question is but too seldom put, and that their numbers, in proportion to the males, is so great, that all of them could not possibly be married without the institution of a modified form of polygamy.

Prudential motives, then, sanctioned even by the most bigoted, induce a great proportion of males to remain unmarried; and a still larger number of females cannot but remain single.

We have said that a system of surveillance cannot be called a legalized protection of vice, unless it be attended by the raising of revenue to be applied to the general purposes of the Government. Let us try to illustrate the question in another way. A burglar receives a wound while breaking into a house; he is taken to gaol, and there receives surgical treatment,—does the care taken of him, a criminal in the eye of the law, at the public expense, constitute a recognition and legal protection of burglary? We think, certainly not. Let us suppose that in rage or despair he endeavours to commit suicide by tearing off his bandages, or by refusing food and surgical assistance, should he be left to his own devices because he is a criminal? By no means. Why, then, should we leave our erring sisters to misery and disease in their hour of need? Their calling is not criminal, in a legal point of view; their misfortunes are greater and their despair more poignant than those of the voluntary criminal;—let us extend, at least, the same amount of care to them as he receives. If those who are without sin amongst us are the only ones to cast a stone on the unhappy fallen, we shall have but few to perform the office of the executioner; but unfortunately there are too many who stand apart, and thank God they are not as other men. Let us, who acknowledge ourselves to be but publicans and sinners, succour the unfortunate and depraved, without troubling ourselves with sophisms about the recognition and protection of vice.

Whatever may be the case with the male population generally, the soldier has a special claim on the Government for protection in this matter. So far as regards care and surgical treatment, he receives all that is necessary; but he has a special claim for protection from diseases of a preventable nature arising from indiscriminate sexual intercourse. The Government allow 8 men per 100 to marry. Eight married women to each hundred men are as many as can earn a sufficiency to meet the increased expenses of a family, by undertaking washing for the rest of the corps; 92 out of every 100 men must therefore remain unmarried, or marry with the certain prospect of the direst poverty before themselves and their families. We do not suppose the public would be willing to sanction what is indeed the only remedy in the army for the social evil,—the marriage of every soldier. If they are willing to adopt this remedy, they must be prepared to undertake the support of as many women, almost, as men, and a still greater number of children. We may assume that the public are not willing to undertake to double the cost of the army; and we have abundant evidence that the natural passions of men are not to be controlled by public regulations or the eloquence of the clergy. Under these circumstances, the necessity of providing the greatest possible mitigation of the consequent evils becomes obvious. If, however, the *Daily News* is willing to advocate the extension to the army of "the distinctive honour and privilege of our country and people,—the adoption of the family as the basis of society," and shall succeed in obtaining a corresponding increase in the army estimates, the cause of morality will be infinitely advanced; in the meantime, we would impress on our readers that prevention is better, and will no doubt prove less costly, than cure. We find in the Army Medical Report for 1869, that 369 out of every 1000 men were laid up in the year with venereal diseases. If we take the average duration of each case at $23\frac{1}{2}$ days, we have a loss of 8672 days in the service of 1000 men in the course of one year, which represents about 24 men in every 1000 on the sick-list every day the year round from this cause alone.

II. The supposition that the Government have hitherto failed to provide occupation and recreation sufficient to fill the soldier's time is in a great measure erroneous. We find soldiers regularly employed as farriers, shoeing-smiths, saddlers, collarmakers, wheelers, and tailors. Those who are not fitted for such duties by previous instruction or individual adaptability, cannot, of course, be so employed. It is by no means unusual to find soldiers who are not skilled artisans employed in road-making, as occasion arises; and, in addition to their military service, all have their turn in keeping the barracks in order, and in other duties which, in civil life, are performed by servants. Teaching in regimental schools is universally adopted throughout the army. In all garrison towns, and, we believe, in all regiments, reading-rooms are established and provided with newspapers, chess, backgammon, bagatelle, and other

innocent games. The military authorities would be glad to have further means placed at their disposal for the improvement of the soldier; but as things are at present, the most is made of the opportunities at hand. We, however, anxiously await the vigorous advocacy of an increased expenditure for these purposes from the *Daily News*, and have no doubt it will be attended by great advantages. The public may rely on such further sums as may be appropriated for this purpose being judiciously expended, and the greatest possible instruction being given to soldiers compatible with their military duties. But we must express a decided opinion, that no reasonable amount of instruction or occupation will modify, to any great extent, the ebullition of the natural passions of men. An evidence of this is to be found in the case of the sappers and miners, who are fully employed as skilled workmen, and are, in many instances, removed from the temptations of garrison towns. We find, in the Army Medical Report for 1860, the following table, illustrating the comparative prevalence of venereal in different corps:—

Annual Ratio per 1000 admitted.	Household Cavalry.	Dragoon Guards and Dragoons.	Royal Artillery.	Royal Engineers (Sap- pers and Miners).	Military Train.	Foot Guards.	Infantry Regiments.	Cavalry Depôts.	Depôt Brigade, R. A.	Depôt Battalion.
Gonorrhœal,	39.3	129.6	167.8	148.7	136.4	72.2	129.1	157.9	217.1	162.6
Syphilitic Diseases, }	79.3	226.7	275.9	175.8	290.9	215.1	194.6	195.5	294.1	149.6

The venereal affections occurring in the corps of Sappers and Miners are hardly below the average; and we believe that, if it were correctly known how many of them resorted to private practitioners, with a view of avoiding "hospital stoppages," and the loss of working-pay, it would be found they suffered as much as any corps. Yet these men enjoy, to the full, all the advantages of trained artisans in constant employment. (The high average in the depot of the artillery is to be attributed, on the one hand, to the temptations of large garrison towns, and the greater prevalence of disease in them; on the other, to the fact that this brigade is composed chiefly of recruits, in all the ardour of youth and vigour.)

III. Any gentleman may ascertain for himself, by inquiry, that the soldier enjoys in abundance the advantages of out-door exercise, good clothing, wholesome food, and means of personal cleanliness. As regards exercises and drills, it is impossible to please civilians. Some of them complain of them as so harsh that the soldier is apt to

break down under them, while others denounce them as insufficient. We believe, from personal observation, that the soldier's duties are so modified and arranged as to ensure the greatest possible efficiency without being either too onerous or too light. The general establishment of gymnastic exercises in covered rooms has been attended with the happiest results in developing the soldier's strength, and improving his health in proportion. We should be glad to find civilians making themselves acquainted with the general routine of the military life, and we are convinced that the impartial inquirer would be willing to admit that the army is well clothed, and fed, and judiciously exercised. At the same time, it must be conceded that barrack accommodation is frequently imperfect, and that an increased expenditure, in constructing new buildings to lodge the soldier, is very desirable in most stations.

IV. The imputation on the skill of military surgeons in their treatment of venereal diseases is simply gratuitous, and is made, we trust to be able to show, without the slightest foundation. Army medical officers have an immense amount of venereal cases passing through their hands; they have on all occasions proved themselves willing to adopt the suggestions of other surgeons, and have been themselves the agents in effecting some of the most beneficial improvements in the treatment of such diseases. It is of rare occurrence that venereal diseases disable soldiers; and we think that this result is due to the skill and care of their medical officers. One of the direst results of severe gonorrhœa, persistent and injudiciously treated, is stricture of the urethra,—a disease common enough among civilians, but almost unknown in the army. We would wish justice to be done to military surgeons in this particular, but we do not claim any credit for the success they obtain in their treatment. The largeness of their experience, and the favourable conditions for treatment in which their patients are placed, account for the successful results obtained.

Let us have recourse to the statistics of the Army Medical Department. In the report for 1860 (the latest issued) we find, that while the admissions for venereal for one year were 369 per 1000 men, the invaliding on this account only amounted to '69 per 1000, and the deaths to '08 per 1000. To simplify matters, it may be said that in a force of 12,000 men, 4428 were admitted for venereal, 8 were invalided, and 1 died.

We venture to think that this result is rather creditable to military surgeons than the reverse, especially when we take into consideration that soldiers have not sufficient means at their disposal to be dainty in their amours, that the very lowest class of *hetairæ* is to be found in garrison towns, and that the greatest physical perfection is required for the fatigues and hardships of military life.

We fearlessly leave the decision in the hands of the impartial critic, and would merely beg of him, in considering the matter, to bear in mind that the diseased soldier is under the eye of his medi-

cal officer from first to last, and the worst consequences that can happen to him are disclosed in the public reports, while the civilian is apt to be lost sight of, and a perfect recovery to be assumed in all cases which have once escaped the surgeon's notice.

Whatever may be the merits of the case, it cannot be denied that the public are indebted to military surgeons for an improved treatment of syphilis and the abandonment of the noxious use of mercury, carried to excess. We no longer have men walking about the streets in considerable numbers without noses, and bearing the most frightful marks of the injudicious use of mercury. For this we are in a great measure indebted to the labours of the late Mr Rose, surgeon to the Coldstream Guards, and, more recently, to the present race of army surgeons. In speaking of the evidence adduced by Mr Rose of the curability of syphilis without mercury, Mr Lawrence says¹ :—"In my opinion this is the most important step that has been taken towards understanding the nature and treatment of the venereal disease; and I should place the truth, thus established by Mr Rose, far beyond any of the speculations that are contained even in the work of Mr Hunter. In consequence of the researches of Mr Rose, the non-mercurial treatment of the venereal disease has been extensively tried in the British army; and registers have been kept at the Army Medical Board showing the result of the treatment, both with and without mercury, from which comparative estimates of the two plans may be made. In other parts of Europe similar investigations have been carried on with similar results; and the consequence of these inquiries has been a general revolution of opinion on the subject, and a corresponding change in practice. Persons who have the venereal disease are now no longer doomed to go through those long and severe courses of mercury which they underwent heretofore."

Perhaps it is not surprising that certain practitioners should be willing to throw discredit on the happy results of the treatment of venereal as practised in the army. The unbiassed testimony, however, of the most eminent in the profession more than counterbalances such detraction. Still, it is to be regretted that the press should be induced to give publicity to the unfounded assertions of a class of surgeons concerning whose mode of practice another eminent surgeon² has written:—"A fearful system of scientific quackery has in recent times been founded upon the ruins of the old mercurial delusion; and although the so-called 'modified use of mercury,' which is at present so much the fashion in Paris and elsewhere, may not be so speedy in its effect, I can testify from what has frequently fallen under my observation, that it empties the pocket and injures the health no less effectually than the process of poisoning which it professes to have so advantageously superseded."

¹ Lectures on Surgery, Ed. 1863, p. 364.

² Syrne's Principles of Surgery, Ed. 1856, p. 379.

Handbook of Physiology. By WILLIAM SENHOUSE KIRKES, M.D., etc., etc. Fifth Edition, carefully Revised and Enlarged. London: Walton and Maberly: 1863.

KIRKES' Handbook of Physiology is far too well known to require any commendation from us. The fact of its having, in fifteen years, arrived at a fifth edition, shows how well its merits have been appreciated. It is, indeed, a model textbook, treating fully and clearly of the principles of the science, and not loading the beginner with a mass of details. The list of works referred to, amounting to upwards of two hundred and fifty, forms a complete Physiological catalogue, and will at once indicate to the reader where he is to look to for minute information upon special points. The present edition appears very *à propos* at the commencement of our winter session, and we could mention no other work as so suitable to be put into the hands of our students.

Part Third.

PERISCOPE.

SURGERY.

ON A VALUABLE DIAGNOSTIC SIGN OF THE EXISTENCE OF ACQUIRED SYPHILITIC TAIN. BY HENRY CRITCHLEY BRODRICK, M.D.

It was whilst reading a *résumé* of M. Ricord's Researches in Syphilis, translated by Maunder, and called "Ricord on Chancre," that my attention was particularly drawn to one symptom the author casually alludes to as indicative of the existence of constitutional syphilis, viz., *substernal tenderness*. Very little stress was laid upon this sign by M. Ricord, so it seemed to me that he attached no very great importance to it. I believe the importance to the practical physician of the discrimination of this one aid to diagnosis is incalculably great, and I hope in this paper to draw the attention of members of the profession to it, that it may be tested by them, and that it may unravel the thread of many a doubtful case in their practice as it has done in mine. Substernal tenderness can only be detected by pressure over the bone, and when searching for it formerly, I used to *knead* the bone with the fore and middle fingers, carefully, from the manubrium to the xyphoid cartilage. In a case of suspected constitutional syphilis, if the patient be asked if he has got a pain in his breast bone, he will probably answer in the negative. The medical man should then *knead* the sternum carefully and gently along the whole of its course, and the tender spot will generally be found at the commencement of the lower third. With much practice and observation in this class of cases I now generally succeed in touching the tender spot at once, to the great surprise of the patient, previously quite ignorant of the existence of this tenderness. If substernal tenderness be found, I believe we are quite safe in assuming

that the subject of it labours under acquired venereal taint, which may have been masked by divers symptoms, and be quite unsuspected both by the patient and the surgeon. It often furnishes a clue to the cause of very anomalous symptoms, and a most invaluable guide to us in treatment. For the past eighteen months I have been *kneading* patients' sternums most diligently, and have been not a little laughed at for the same by those not previously aware of the significance of substernal tenderness. The native doctors attached to the Malwa charitable dispensaries, which I superintend, all now practise this palpation in suspected cases to the very great benefit of their patients. Although the existence of substernal tenderness is, I believe, unerringly significant of venereal dyscrasia, it must be borne in mind that a patient may be constitutionally syphilitic without manifesting this particular sign. But, when detected, in it the physician has a very valuable guide for treatment. Substernal tenderness is, no doubt, produced by a periosteal inflammation, slight in degree, and may be in its immediate effects, such as pain and tenderness, inappreciable to the patient. The iodide of potassium must be prescribed, under which the tenderness quickly subsides with other symptoms, which, mysterious before, this sign has taught us to decipher. I have hunted diseases to their source at once, in scores of cases, since I became aware of the existence and the importance of this diagnostic sign, and the rapid improvement of such cases under the specific treatment indicated above has invariably confirmed my diagnosis. I speak confidently on this point; that I am justified in this confidence any one can test easily in his practice. Constitutional syphilis prevails very largely in Malwa, so that I have a large field in which to practise palpation of diseased sterna amongst the sick coming to my dispensaries. I have had a limited experience of this diagnosing amongst Europeans, but I have found substernal tenderness in at least twenty such, and in as many the sign has led to the successful treatment of the disease it indicated. In a suspected case, then, look for this tenderness; it will usually be found at the commencement of the lower third, occasionally in the upper third, and very seldom in the space intermediate. When it is once made out, the subject of it should at once commence taking the iodide of potassium.

This leads me to some considerations of this drug, which, next to quinine, is about the most powerful, efficient, and satisfactory remedy the medical man possesses. I do not believe in the absorption of testes and mammae that has been said to have resulted from saturation of the system by iodine; I have prescribed the drug largely myself, and have seen it given in enormous doses in England, but I have never, as yet, seen its exhibition produce the ill effects it has been popularly saddled with, nor have I ever heard of a genuine and authenticated case of this nature. If we are to be deterred from prescribing certain drugs, because people have *heard*, or "a man who saw a case of this kind *told* me, that such and such an ill result occurred," we shall be half disarmed. It is quite possible that highly organized glandular structure interstitially diseased may have disappeared, whilst the iodide of potassium was being taken, but it is not fair to attribute this result to the drug, seeing that, *eodem tempore*, the organ was in a state favouring absorption, which result might just as readily have followed the exhibition of Morison's pills, or the "*Rob de l'Affecteur*," whatever that may be. In prescribing the iodide of potassium, then, we may safely lose sight, I believe, of the peril of emasculation as one of its ill effects. This drug has the faculty of permeating the economy with extraordinary rapidity. I remember once seeing a Prussian in whom both ureters opened directly in the groins, and whose urine continually distilled from their orifices. We gave him doses of iodide of potassium, and in two or three minutes, I forget which, the secretion from the ureters formed blue iodide of starch when caught in a test tube containing starch. It is best prescribed in five-grain doses, and should be given before meals and largely diluted. If a very rapid effect is desired, it may be given in scruple or half-drachm doses, but, in such large quantities, it is sure, ere long, to induce gastric irritation, nausea, loss of appetite, vomiting, etc. The ordinary signs of iodism, such as

dryness of the fauces, coryza and pain in the frontal sinuses, need be no bar to the continued use of the drug. It has been stated lately that the effects of iodide of potassium are exalted and hastened by combining it with the compound spirits of ammonia. I often give it thus combined. I often give it with compound decoction of sarza, a medicine that has been much ridiculed as being, to say the least, quite inert. But it is, when given hot, a powerful sudorific, and thus a valuable adjunct in the treatment of such secondary affections as lepra, psoriasis, and other skin diseases. Moreover, it is certain that the stomach is much more tolerant of iodine when thus prescribed than when it is given alone, as it is of ipecacuanha when given with extract of gentian. Even when prescribed in five-grain doses the iodide is apt to produce gastric irritation after being given steadily for fifteen or twenty days, when the stomach becomes irritable, the appetite blunted, and the alvine evacuations clay coloured. It should then be omitted, and dilute nitric acid with calumba given, when the gastric irritation will subside; it may then be recommenced. Formerly it was reckoned a "spanamic," but Ricord found, by direct experiment, that the red globules of the blood were augmented in quantity during its exhibition. I have never made such experiments myself, but the fact of patients growing strong under its use, and picking up in condition, as they do, shows plainly how powerfully it acts in improving the tainted blood and increasing its hæmatin and globulin. It may do this indirectly by stimulating the absorbents and giving new tone to nervous structure; it is enough for me that, when judiciously given, it rapidly brings the patient into condition. Iodide of potassium is now procurable in a state of absolute purity, being largely used in paper photography; I seldom find samples of it adulterated, as it used to be, with the carbonate of potassa.

I now very briefly allude to some other signs of acquired constitutional syphilis, which too are alluded to by Ricord as "inguinal and cervical adenite," in other words, chronic induration and enlargement of inguinal and cervical glands. I believe that whenever you find subternal tenderness—ergo, constitutional syphilis—you will find some of the upper tier of inguinal glands enlarged, hard, movable under the finger and painless, and never single. Ricord calls this affection "multiple adenite." Enlargement of the posterior cervical glands is not so easily detected, but if I take sufficient pains in the search, I never fail to find "posterior cervical adenite." Such an adenite may very commonly be found between the posterior border of the sterno-mastoid and the anterior border of the trapezius muscles. Here, then, we have three very valuable diagnostic signs of constitutional syphilis being present, of which I attach most importance to the subternal tenderness. The medical man who refrains, from motives of delicacy, from putting leading questions to his patient regarding indiscretions or misfortunes, may, by means of palpation of the sternum, often get all the information he requires. I have often done so, and have in several cases detected thereby the existence of acquired venereal taint in native women, domestic servants, and others, when, by inquiring from their husbands, I have subsequently had my diagnosis confirmed. In the above remarks I have given no uncertain sound, but my confidence is the offspring of a considerable experience and of careful observation. In conclusion, I would beg to suggest that all medical officers who are employed in the examination of recruits, European and native, might advantageously bear these facts in mind: the knowledge of them might prevent the enlistment of many diseased recruits, men destined during their service to haunt the hospitals and to be eventually invalided, withered by this dreadful, widespread scourge.—*The Madras Quarterly Journal of Medical Science*, October 1862.

ON THE DISADVANTAGES OF MERCURY IN THE TREATMENT OF SYPHILIS.

BY DR DIDAY.

THE distrust entertained with regard to the use of mercury is not of recent date. So early as 1532, Massa had to inquire into the opinion of those who maintained that it was injurious to the nerves, and he was obliged to allow

that it should not in any case be prescribed until it had been determined whether it was likely to do more good than harm. Montanus declared that there was nothing worse for the treatment of syphilis than to prescribe mercury either internally or externally. Benedictus only recommended as a *third resource* the employment of mercurial inunction, for, said he, mercury should never be used by a prudent physician but with fear and caution. Finally, Vigo, as a general rule, treated syphilis for a year by simple non-mercurial remedies. If at the end of this time it had resisted these means, the *morbus gallicus* was declared to be confirmed, and only then mercurial frictions were employed.

The objections to the use of mercury do not require to be exaggerated, and I shall not renew the old imputation that it was the cause of all the accidents of syphilis. Neither do I believe with the Germans (although Virchow has twice and Hirt three times found mercury in the skeleton), that this metal produces caries. Nor can I agree with those who maintain that mercury gives rise to the headache which often characterizes the evolution of syphilis, nor that it is the cause of baldness. It is certain, indeed, that if given injudiciously, or in too large doses, it may aggravate those accidents which depend upon anæmia, and which are an effect of the diminution of the blood-globules. In such circumstances, we cannot but expect from such a substance as mercury an increase of the existing evil. Moreover, from its irritant action on the intestinal canal, mercury often contributes to derange nutrition by rendering the digestion imperfect. This production of general debility is sometimes established by a sort of counter-proof more convincing even than the direct proof. A person has syphilis, and, at the same time, takes mercury. He complains of increasing weakness and of feeling a certain degree of intellectual depression, but in general you cannot tell how much is owing to the disease, how much to the remedy. But suspend the latter, and you will often be surprised with the result. A young man who had been mercurialized to excess, and kept on low diet, was not recovering, and was becoming visibly emaciated. I stopped the mercury and gave a generous diet, and at the end of a month he had quite regained his former healthy appearance. In August 1857, I saw an individual who had been treated for two months, on account of a persistent affection of the tonsils, with protoiodide of mercury in very rational and very moderate doses, but his cure was not progressing. By way of experiment, I told him to discontinue the mercurial. Eight days afterwards he returned to see me, and exclaimed, on entering my room, "I feel myself another being; since I have discontinued the medicine my strength has been returning." A high authority confirms this opinion. Ricord places the early treatment of mercury among the causes which may lead to the chancre assuming the phagedenic type. Mercury, then, according to our master, has a real influence upon the constitution; and this influence it is evident can only be debilitating.

Ptyalism.

The effect of mercury upon the buccal mucous membrane is well known, but it is incorrect to believe that we can prevent it, or overcome it with certainty, by moderating the doses, by discontinuing its employment, or by the prophylactic use of alkaline chlorates. I do not at present allude to those atrocious salivations which were formerly regarded as the criterion of the efficacy of the remedy, which nowadays we all dread, yet of which, in spite of all precautions, we occasionally see examples. I only speak of those ulcerative erosions which attack the free border of the gums, uncover the teeth, and give to the breath a disagreeable odour. This condition is often, very often, the result of the ordinary doses of mercury. It is seen in the course of the most rational treatment, in spite of the advice given and acted upon to stop the drug as soon as the gums are touched. We can alleviate this condition, no doubt, and end by curing it; but in many persons the cure is tedious, and the habit of salivation having been produced, it is liable to recur for years, and sometimes the effects are never entirely got rid of.

Dyspepsia.

The injurious effects of mercury upon the intestinal canal are obvious. But different from the pyralism, in this case the effects usually observed are slight. Suppose a person who is taking mercury were to suffer from an intercurrent diarrhoea, weight in the epigastrium, slight loss of appetite, a little nausea or vomiting. I should not blame the mercury for this, for on the same ground we should be obliged to discontinue the use of tartar emetic, copaiva, and even iron. But what I allude to, and what I deplore as the results of mercurialization, are cases of dyspepsia, well marked and durable, which are sometimes produced under its influence. This accident does not interest me so much from its frequency as from the difficulty or impossibility of preventing it. Suppose a patient taking mercurial pills and bearing them moderately well. To render them more tolerable, you adopt the various means in use: you discontinue the remedy from time to time; you associate opium with it; you administer after each pill a demulcent drink; you regulate the diet and the period of the meals. These means seem to be effectual; in spite of some slight inconveniences (which the physician must always expect when he writes the word *mercury*), everything seems going on well, and you persist, and with propriety, in preferring ingestion of the remedy by the mouth to another mode of absorption more innocent, but less efficacious. But soon what was merely a temporary inconvenience becomes **habitual; digestion is laborious; weight in the epigastrium after taking food is constant; certain articles of diet cause indigestion; constipation, eructations, loss of appetite, or a voracious appetite, complete the picture.** Little by little emaciation takes place, the temper becomes gloomy or irascible; in other words, dyspepsia is confirmed, and makes progress in spite of the immediate discontinuance of the mercury, and in spite of all your care. Five of my patients during the last three years have been examples of this affection. Although the treatment had been conducted with all possible precautions, they offered the severe and varied symptoms produced by dyspepsia. One of them, at the head of an educational establishment, had, although becoming emaciated, so ravenous an appetite, that the four meals he had been in the habit of taking with his young pupils were no longer sufficient. A second had become so feeble that a constant precordial anguish and frequent fainting fits testified to the extreme insufficiency of his nutrition. In the case of the most fortunate of my patients, two years, one or two seasons at Vichy, and the most careful dietetic management, have been required to effect a cure. The others still suffer; they have, be it understood, lost confidence in me, and they never meet me without their expression testifying the gratitude which they and I owe to the *remedy* which has produced such relations between us.

Trembling.

This condition I have several times observed developed under my own eyes as a result of the moderate administration of the remedy prescribed either by myself or by others. One of my medical brethren, who had contracted syphilis in delivering an affected woman, wished, in order to spare the intestinal canal, to use mercury externally. After the *third* friction, he felt an involuntary trembling of the hands, especially noticeable in writing. By immediately suspending the remedy, he got rid of this symptom, and under my direction he recovered from his disease without the use of mercury. A gentleman, forty-five years of age, as the result of a mercurial treatment both indispensable and moderate, had contracted such a trembling that in writing he put *p* for *b*, and so on. I could cite other cases of this kind much more severe; among others, that of a poor lawyer's clerk, whose history I may mention. Under the direction of a very able practitioner, the young man had been ordered, on the 18th July 1857, to take one grain of protoiodide of mercury daily, on account of syphilis which had lasted for a month, and which I had considered myself warranted in treating without mercury. He continued the protoiodide till the 9th of September, when it was discontinued on account of a slight salivation. He resumed it on the 15th of September, but on the 23d he described his state as follows:—"I feel

itchings over the whole body, most marked on the shoulders, the knees, the sides of the chest, and especially the fingers, accompanied with a feeling of stiffness, and such cramps as render me quite incapable of regulating my movements so as to be able to write or to button my clothes." At this time the appetite and sleep were normal, there was no fever, and no intellectual disturbance. In spite of all my care, and the most various modes of treatment, to which the patient most willingly submitted, in order to be able to resume his employment, the trembling persisted for more than two months. On the 18th of November, he told me that when he wrote for a short time his hand became agitated and refused its service. As to the syphilis, it only showed itself in the form of a few patches on the tonsils and around the anus, and of some lichenous patches on the glans penis. The mercury was not resumed, and I saw the patient for the last time on the 12th February 1859, perfectly cured.

Mercurial Insanity.

Two circumstances will for long prevent us from obtaining on this subject a positive solution. In the first place, we no doubt see persons go mad during or after the remedial action of mercury. But are there more madmen among a given number of persons who have been mercurialized than of those who have not? So long as accurate statistics are wanting, the supporters of mercury will have a right to maintain, that though this agent does not preserve from madness, it does not predispose to it. In the second place, few persons take mercury without having syphilis. If one goes mad, whether would it be correct to accuse the disease or the remedy? This question is still more obscure than the former; it is indeed almost impossible to elucidate. I may cite a single case in illustration of this point. About the middle of 1856, a medical student at Montpellier had two gonorrhœas and then a chancre. Believing himself infected, he was for a long time (as long as the gonorrhœas lasted), treated with the pills of Dupuytren and the mixture of Van Swieten. In November 1857, this young man returned to Lyons; his family had never had any symptom of mental alienation, but it was noticed that there was a certain moroseness about him and a marked loss of memory. These symptoms went on increasing. He left Lyons, and had an acute attack, which was disguised under the name of a brain fever; he became permanently maniacal, and died in an asylum. I have observed, in my special practice, all the varieties, all the degrees of mental alienation. In 1854, I treated a young man of fair complexion on account of some obstinate patches of impetigo on the scalp. At his special request, although he had no other symptoms, I mercurialized him, and he was affected to such a degree that after several attacks of stomatitis, the crown of one of his molar teeth became friable and dropped off. This young man, whose disposition was remarkably cold and positive, became hypochondriacal, had hallucinations, sought solitude, and shunned his friends. He thought no more of his syphilis, but told me perpetually that he felt himself going mad. He returned to his native place and wrote me several letters which indicated progressive mental alienation, but I have not heard any more of him. Another young man, of an excellent and very healthy family, persisted in taking mercury on account of syphilis, which he would not believe to be cured although there were no longer any symptoms of it. At first he manifested irregularities of disposition, then eccentricities more and more strange, then true hallucinations. A fly could not settle on his nose, an announcement could not be put into his hand in the streets, without his asking why his enemies persecuted him so. He died quite mad. A merchant had had several attacks of syphilis: anxious to resume a life of pleasure, he got himself cured as speedily as possible; but on the disappearance of the local accident, he mercurialized himself largely, in order "to destroy the virus." At the age of thirty-two he presented the most unmistakable signs of mania, and finally subsided into a condition of dementia. Every one has heard of the deplorable death of a member of the bar, who died lately in an asylum. But what is not generally known is, that being on the eve of marriage,

and being anxious to be cured of some persistent fissures on the edges of the tongue, he had taken mercury to a large extent. He had applied to Ricord, to my friend Dr Gromier, and to myself, carefully concealing from each of us the fact of having consulted any one else, and his only object seemed to be to get as large a quantity as possible of mercury prescribed.—*Revue de Thérapeutique Médico-Chirurgicale*, September 1863.

ON THE PERFORMANCE OF TRACHEOTOMY IN CHILDREN. BY M. GIRALDES.

M. GIRALDES is of opinion, that the rules laid down for this operation in surgical treatises are not explicit, and that the great variety of instruments which have been proposed tends rather to increase than to remove difficulties, and to confuse the mind of the operator. Ingenious in their construction, they seem capable of fulfilling every indication, and of enabling hands, however inexperienced, to perform the operation without much difficulty. Most of these inventions testify rather to the ingenuity than to the experience of their constructors. For its rapid execution, tracheotomy requires none of these special instruments—a convex bistoury, slightly pointed, a dilating forceps, and two blunt hooks, constituting all the necessary apparatus. The canula in croup is indispensable. The following rules for the operator may be laid down:—

1. *The position of the Patient and Assistants.*—This is a very important preliminary, embarrassment and difficulties sometimes resulting from the faulty manner in which the patient has been placed and maintained. The child should be laid on a mattress placed upon a table, having his neck supported by a bolster, and his head thrown forcibly backwards, an assistant kneeling down behind, supporting it firmly in this position by placing his hands over the jaws. Another assistant should fix the shoulders so as to prevent the slightest movement. The patient is thus maintained immovable, and there are none of the oscillations of the trachea which various instruments have been contrived to prevent.

2. *The Operation.*—The operator, standing on the right of the patient, carries his incision, three or four millimetres in length from the cricoid cartilage, rapidly, but without precipitation, as deep as the thyroid gland before it becomes necessary to stop and sponge away the venous blood. The forefinger is then passed into the wound and fixes the trachea, its nail serving as a conductor to the bistoury with which the puncture in the trachea is made. Without removing his nail from the wound in the trachea, the operator slides in the dilating forceps along it, and by a slight pressure secures enough dilatation for the admission of the canula. The child should now be set upright, in order to facilitate the expulsion of false membrane or blood from the air-passages. The end of the canula should be carried directly to the bottom of the wound, in order to prevent its sliding off in front of the trachea. Before securing it, the fact of its entrance into the air-passages must be carefully ascertained. The aperture in the trachea ought not to be of too large an extent, and even if it be made too small it may be easily enlarged by means of a probe-pointed bistoury. During the operation the child should be well covered, and carefully protected from all chills.

3. *Accidents during the Operation.*—The sliding of the canula in front of the trachea has already been adverted to. *Hæmorrhage* usually ceases when normal respiration has become established naturally or by artificial means, such as frictions or taps of the thorax, made with the view of regularizing the play of the respiratory muscles. The hæmorrhage almost always proceeds from veins, which are sometimes numerous and distended: and when the incision has been carried to a great extent, so as to approach the sternal *fourchette*, there is a great probability that numerous and voluminous venous trunks may have been opened. If the bleeding persist, rounds of agaric, dipped in Commander's balsam, should be applied. When the blood bubbles up by the side of the canula, the wound of the trachea has been made too large, so that the blood gets entrance during inspiration. A larger canula should at once be substituted.

When the operation has been a laborious one, *emphysema of the neck*, sometimes extending to some distance, may be met with. It usually results from a want of parallelism between the cutaneous and the tracheal wounds. Ill-repressed movements of the child may have displaced the trachea, or too great a delay in the introduction of the catheter may have favoured the passage of the air into the cellular tissue. The same result may occur from the tracheal wound being too large or the canula too small. Frictions and shampooing the emphysematous region should be employed.—*British and Foreign Medico-Chirurgical Review*, July 1863.

Part Fourth.

MEDICAL NEWS.

REPORT OF THE TRIAL OF ELIZABETH KEENAN FOR MURDER.

GLASGOW, *October 1863.*

With REMARKS by HUGH COWAN, Advocate.

CASES of child murder are usually very much the same in character, more or less painful in their circumstances, but in general features almost identical. Now and then, however, a case of more than ordinary interest arises, in which the woman has been sinned against rather than sinning; and where, still retaining the fresh feelings of a true woman's heart, the usual barbaric expedients for extinguishing the life of the child are absent, and its death is caused not so much by efforts to put an end to *its* life, as by the despairing anguish of the mother, and the efforts she directs against her own life. Such a case was that of Elizabeth Keenan, tried at the recent Glasgow Circuit, on 1st October 1863. Besides disclosing as touching a case as is to be found in recent criminal annals, it involved a point of considerable medico-legal interest. The child appeared to be well enough when rescued from the water at half-past ten at night, and began to cry, which it continued to do till three in the morning, after which its breathing became very difficult, and it died about nine in the morning. The medical gentleman who saw it at night found its pulse good and its breathing regular; but the post-mortem examination disclosed very great engorgement of the lungs, which produced asphyxia and death. From the testimony of the medical gentlemen who conducted the post-mortem examination, it is clear that death was caused by asphyxia produced by the engorgement of the lungs, and of this engorgement of the lungs there was no possible cause except the immersion in the water on the previous night. But it is a new thing in medical science, that a child which ultimately dies from this cause should immediately after the submersion in the water be found in the state of health described by Dr Dunlop. Nor does the general vigour and strength of the child at that time rest upon his evidence alone. The various witnesses who saw it speak to its loud cries with nothing unnatural about them, and it is proved to have so cried till three in the morning. Medically, there can be no doubt that death was caused by the drowning, but it is the first case

in which so long-continued vigour of respiration has been found compatible with incipient engorgement of the lungs.

It has been well said in regard to those who have been so long immersed in the water as to leave little hope, physiologically speaking, of their recovery, that "the man who would neglect the application of the means of restoration would consign the body to certain death, while by adopting an opposite course he might perhaps, unexpectedly to himself, succeed in restoring a fellow creature to existence." But the occurrence of such a case as that now reported shows how important it is, even when a person has been rescued from the water, and seems to have recovered from the effects of the submersion, still to be at hand with remedies, and to be watchful to apply them if a relapse should take place.

The prisoner, Elizabeth Keenan, was placed at the bar charged with the crime of murder, in so far as on the 6th day of August 1863 (Friday), she, having formed the criminal resolution of putting an end to her own life, and also to the life of an illegitimate male child called William Keenan, or some other name to the prosecutor unknown, then about five or six weeks old or thereby, now deceased, of which she was the mother, and which was then in her charge or custody, did, at or near a part of the Glasgow, Paisley, and Ardrossan Canal, which is 142 yards eastward of the bridge over said canal, called Shield's Bridge, in the parish of Govan and shire of Renfrew, wickedly and feloniously leap or throw herself into said canal with her said child in her arms, or tied to her person, and this she did with the intention of drowning her said child; and she and her said child having been afterwards rescued and taken out of said canal, her said child, in consequence of the injury sustained by it by her actings, died on 7th August, and was thus murdered.

The counsel for the crown was Mr Alexander Moncrieff, A.D., and the counsel for the prisoner were Messrs William Ludovic Mair and John Campbell Smith, advocates.

The pannel pled not guilty.

The general evidence in the case substantiated the prisoner's declaration, which was as follows:—My name is Elizabeth Keenan, and I am twenty-three years of age. I belong to Glasgow, and was last resident in Macalpine Street. On 30th June last I gave birth to a male child in the Lying-in Hospital, Rottenrow, Glasgow. The birth was registered, and the child named William Keenan. Said child was illegitimate, and his father is William Ballantyne, bolt and rivet maker, 33 Richard Street, Anderston. I remained in the hospital seven days after the birth, and then went to Mrs M'Leod's in Macalpine Street, Glasgow, where I remained two days, going from thence to Govan Poorhouse, in which I remained eight days, and then returned to Mrs M'Leod's. I remained in her house till the night of Tuesday, 4th instant, when I left in consequence of having nothing with which to pay. On the Tuesday night I went to the child's said father with it, and asked him to do something for us. He said he had nothing. I then proposed to follow him with the child to his sister's house, where he lodged, but he would not go in there while I was with him. He then met some lads, and went with them into a public-house to shun me, but I followed him, on which he told me to go to hell, and left me, so I was forced to sleep in a stair with my child that night. On Wednesday I got a cup of tea from a stranger at Collier Row, and slept in a stair that night also. I got no food on Thursday, and my head was turned with fatigue and privation, and I did not know what I was doing, and I went to the canal banks between nine and ten that night. My child was tied in my shawl across my breast, and I was tired of life and did not know what I was doing. I threw

myself into the canal, and I know no more till I was brought to consciousness in the police office, and heard my child crying. Between one and two o'clock on Friday morning my child and I were taken to the Govan Poorhouse, where the child died about nine o'clock the same morning. I have another child, which was taken from Mrs M'Leod's, where I left it, to the Govan Poorhouse on Friday morning last. It is a girl, and the only other child I ever had. She is two years and nine months old, and her father is Thomas Docherty, labourer, Highland Close, Bridgegate, Glasgow. I wish to add, that although my baby's father, Ballantyne, professed great affection for it, and came and slept one night on the floor in Mrs M'Leod's, promising he would give me some money when he got his pay on the following Friday (three weeks since), he never did anything for it or me, although I repeatedly applied to him for help."

It appeared¹ that she had been rescued a few minutes after she had thrown herself into the canal; that the child, which was fastened in front of her by a black shawl tied round her waist, was alive when rescued, and began to cry; that after being taken to the police office the child² vomited a good deal of water mixed with blood, and seemed to have a kind of stoppage in the chest when it breathed; and that the child³ continued to cry a good deal from half-past ten o'clock, when it was rescued, till three in the morning, when it got worse, breathed very badly and moaned, dying at 8.50 in the morning.

The following is the medical evidence *in extenso* :—

James Dunlop, M.D., Carleton Place, Glasgow.—On the evening of 6th August last, between 10 and 11 P.M., I went to the Gorbals Police Office, and found a woman, the prisoner, and her child there. The woman was in a very feeble state. I was not sure she was alive. The child was crying, and seemed of a natural colour. I had the woman put near the fire. While they were removing the woman I examined the child. Found its pulse good; the skin naturally warm. I put my ear to the chest, and found the breathing apparently regular. The child was conscious, for I put my little finger in its mouth, and it began to suck, and stopped crying. This enabled me to hear the breathing. I then told the woman who had the child to keep it warm. I then examined the woman; her skin was perfectly cold; she was pulseless at the wrist. I could perceive no respiration. I thought her dead, but applying my ear to the chest I thought I heard a slight click of the heart. I succeeded in restoring the woman, and by 12 I thought them fit to be removed to the poorhouse. I desired both the mother and child to have toddy; but if the child could get milk from the breast it was to get no toddy. I saw the child after death, but I was not present at the post-mortem examination. Two teaspoonfuls of toddy⁴ was not too much for a child if properly diluted. *Cross-examined by Mr Mair.*—I was about an hour and a half in the police office with the woman and child. I did not think the child in danger. I found the back part of the child's chest quite resonant. I did not think there was any engorgement of the lungs. There were no symptoms of asphyxia about the child. When death does not immediately follow the submersion, there is usually a period of unconsciousness, and the appearance of asphyxia, from which they may rally, and there is a relapse. But in this case there was no unconsciousness, so far as I saw. I went to the poorhouse about 10 A.M. of the 7th. The child was dead. I was very much surprised. The prisoner was weeping bitterly for her child. *Re-examined.*—The child seemed fat and plump. There was no appearance of starvation or want.

¹ Evidence of James M'Lean, William Fleming, and Mrs Wright.

² Mrs Wright's evidence.

³ Evidence of Christina Wilson, the nurse at Govan Poorhouse, to which the child was removed. Charles Stevenson, a police constable, saw it for twenty minutes after it was brought to the police office, and says,—It was crying all the time, just the way a child commonly does.

⁴ The nurse at the poorhouse had given this to the child during the night.

Walter Boyd M-Kinlay, M.D., Paisley, read the following report of the post-mortem examination:—

"PAISLEY, 8th August 1863.—This morning, within the dead-house of the Govan Poorhouse, we, the undersigned, made a post-mortem examination of the body of a male child, which was delivered to us by Charles Stevenson, police-constable in Glasgow police force, in presence of John McCulloch, Governor of said poorhouse. The body was plump, well-formed, and seemed to be that of a child of between one and two months of age. On no part of the surface of the body was there any mark of violence. On proceeding to lay open the various cavities a considerable amount of fatty tissue was found under the skin. There was no effusion into the larynx or trachea. Both lungs were found to be much engorged, the upper part of both being very much so. There was very slight effusion into the right pleura. On opening the pericardium the right auricle was found to be distended, with a fibrinous clot and dark blood. The right ventricle was in a similar state. The auricle was full of dark fluid blood; the left ventricle was empty. The valves were normal. On opening the abdomen the liver was found in a normal state. The stomach contained a small quantity of glairy fluid, having small quantities diffused through it. The lining membrane was natural. The other viscera were normal. There was only a very minute portion of feculent matter in the bowels; the bladder was full. On exposing the brain the bloodvessels were found much congested; the external ones more so than the internal. There was no effusion into either of the ventricles. We are of opinion that the death of the said child was caused by the engorgement of the lungs, this preventing breathing, and that such engorgement was the result of asphyxia.—This we certify on soul and conscience. W. B. MCKINLAY, M.D., F.R.C.S., S. JOHNSTON MOORE, M.D."

That is a true report. The immersion of the child in water eleven hours before death for three or four minutes might have produced the asphyxia which caused death. I have known cases where death by asphyxia did not take place till eighteen hours after immersion; but there was great difficulty in breathing during the whole interval. The child was quite healthy. There was no appearance of violence, and no visible cause of death, but the asphyxia. When I made the post-mortem examination, I did not know the child had been in the water. *Cross-examined by Mr Smith.*—Death by drowning very seldom occurs if the patient recovers after being taken out of the water. *Re-examined.*—I think that in the interval between submersion and death from asphyxia, there may for a short time be a good pulse and regular breathing; and this is more likely in the case of an infant wrapped in a shawl, for the mouth of the infant might be covered by the shawl while under water. *To the Court.*—Do you think the condition of the child when in the police-office, as described by Dr Dunlop, is inconsistent with your supposition, that it afterwards died from the effects of the submersion? I would think that engorgement, if it had not taken place, had commenced to take place, and was to some extent present when Dr Dunlop saw the child. Why? From the state in which I found the child at the post-mortem examination; and I do not think that the child could have given a loud full cry, though it might have cried partially. You think that engorgement must have begun before this time? Yes. And your reason is what you saw at the post-mortem examination? Yes. But if the facts stated by Dr Dunlop, as having been observed by him in the condition of the child in Gorbals police-office, are accurately stated, would that be in any way inconsistent with the theory that the child died from the effects of the submersion? If these facts were actually present, I would say that was inconsistent. That I suppose is because that condition of the child shows that engorgement was not present? Was not present or had not been detected. But if these facts are quite accurately stated, engorgement was not present? Was not present. And if there was no engorgement at that time, the submersion could not have produced engorgement afterwards? No. The full cry of a child is not consistent with the state of engorgement you would expect after submersion? No, it is not. And, of course, the fact becomes of greater importance if the child

continues to cry loudly from eleven o'clock at night to three in the morning? Yes. That would be inconsistent with the presence, and, above all, with the increase of the engorgement? Yes.

Samuel Johnston Moore, M.D., Glasgow.—The report of the post-mortem examination made by Dr M'Kinlay and me is a true one. *To the Court*—Supposing the state of the child within half an hour or an hour after it was taken out of the water to be what Dr Dunlop described, do you think it could have died from the effects of the submersion some ten hours afterwards? There are many cases on record where recovery has seemed to take place, and yet, from the shock the nervous system has received, death has been ultimately the result. If the child were treated, it might be resuscitated for the time being, and yet the shock to its system be so great as ultimately to produce engorgement. The facts stated by Dr Dunlop as to the condition of the child within half an hour or an hour after being taken out of the water are inconsistent with the presence of engorgement at that time? There could not be the same state of engorgement of the lungs as I saw on examination. Could there be any? There might be slight engorgement. It must have been very slight? It must have been very slight if the child cried fully and breathed freely. If the engorgement was so slight at that time, do you think the child could afterwards have died from the effects of the submersion? It might. Is the crying of the child up till three in the morning consistent with the presence and gradual increase of engorgement? If it continued to cry strongly till near the time of its death, that is not consistent with the presence and gradual increase of engorgement. But supposing it cried till three o'clock and died at nine? I should think that engorgement, to any extent, had commenced after the child had ceased to cry. The engorgement which I saw must have commenced after the child ceased to cry. And does that affect your opinion as to the previous submersion being the cause of the engorgement? The person might seem to recover, and to be out of danger, and after a considerable time engorgement might take place from the shock the nervous system had received. If the child swooned on striking the water, engorgement might not take place at once, but begin an hour afterwards, though the child recovered in the meantime, and was in the state described by Dr Dunlop.

The Advocate-Depute abandoned the charge, and the jury returned a verdict of Not Guilty.

THE ROYAL COLLEGE OF PHYSICIANS AND THE SOCIAL SCIENCE ASSOCIATION.

ON Monday the 12th of October, the Royal College of Physicians entertained at dinner Lord Brougham and other distinguished members of the Social Science Congress, on which occasion the Royal College was honoured with the presence of His Royal Highness Prince Alfred, attended by Major Cowell. The invitations extended to about one hundred persons, seventy of whom partook of the hospitality of the Royal College. The Prince was received at the door of the hall by Dr Wood, vice-president of the College, and by Dr Burt, one of the Council, and conducted to the Library. The chair was occupied by Dr Craigie, the president; Dr Wood (vice-president), Dr Haldane (secretary), and Dr Somerville (treasurer), acting as croupiers.

Among those present, in addition to His Royal Highness Prince Alfred and Lord Brougham, were:—The Lord Provost, the Chancellor of the Exchequer, M. Garnier Pagès, Right Hon. J. Napier, Sir Christopher Rawlinson, Sir Harry Young, K.C.B.; Sir J. Kay Shuttleworth, Sir Charles Hastings, Judge Longfield, Sir David Brewster, John Pender, M.P.; Nassau Senior, Esq.; Dr Newbigging, the President of the College of Surgeons; Mr W. Brougham; Professors Syme, MacLagan, and Archer; Colonel Torrens; Messrs Desmarest, Herold, and Henri Martin; Rev. Dr Bell; Messrs Whyte Melville, E. Chadwick, Westlake, R. Rawlinson, W. Cookson, Hastings, H. Roberts, A. Kinnear, and

Dr Markham. Of the Fellows of the College, there were:—Professors Christison, Simpson, Laycock, and Gairdner of Glasgow; Drs Renton, Seller, Begbie, Smith, Moir, Malcolm, Matthews Duncan, Burt, Keiller, Wright, G. Paterson, Cumming, Keith, Scoresby Jackson, Brown, Graham Weir, Sir James Coxe, Pattison, Sanders, Grainger Stewart, Patterson (Leith), Zeigler, Halliday Douglas, etc. Apologies were received from His Grace the Duke of Buccleuch, Earls Russell and Minto, Lord Dunfermline, the Lord Advocate, the Lord President, Lord Justice-Clerk, Lords Curriehill, Neaves, and Ardmillan; Sir Walter Crofton, Sir John McNeill, Sir William Gibson-Craig, Bart.; Hon. Mr Waldegrave Leslie, Bishop Morell, Captains Speke and Grant, Adam Black, M.P., etc. etc.

The toasts of the evening were generally given from the chair, and were replied to by H.R.H. Prince Alfred, Lord Brougham, the Right Hon. Mr Gladstone, M. Garnier Pagès, Sir Charles Hastings, the Hon. Joseph Napier, etc. etc.

ROYAL COLLEGE OF SURGEONS.

At a meeting of the Royal College of Surgeons of Edinburgh, on the 21st ult., the following office-bearers were elected for the ensuing year:—

President, Benjamin Bell. *Treasurer*, John Gairdner, M.D. *Librarian*, Archibald Inglis, M.D. *Secretary*, James Simson, M.D. *President's Council*—Richard Huie, M.D.; James S. Combe, M.D.; Andrew Wood, M.D.; P. S. K. Newbigging, M.D.; James Syme; James Spence. *Ex-officio*, John Gairdner, M.D. *Examiners*—John Gairdner, M.D.; James Simson, M.D.; Richard Huie, M.D.; William Dumbreck, M.D.; Archibald Inglis, M.D.; Andrew Wood, M.D.; Robert Omond, M.D.; P. S. K. Newbigging, M.D.; James Dunsmure, M.D.; James Spence; Peter David Handyside, M.D.; James D. Gillespie, M.D. *Assessors to Examiners*—David MacLagan, M.D.; James S. Combe, M.D.; James Syme; Samuel A. Pagan, M.D. *Conservator of Museum and Registrar of Students' Tickets*, William R. Sanders, M.D. *Officer*, John Dickie.

MEDICAL STUDENTS IN LONDON.

THE October registrations of those gentlemen now pursuing their studies at the various metropolitan schools having been brought to a close, it appears that the gross number amounts to 1009. In 1860 there were 1228, which was reduced in the following year to 1124, again being reduced in the past year to 1045. Owing to the removal of St Thomas's Hospital, Guy's now takes the lead in the number of its students, amounting to upwards of 200; and from the high position attained by these gentlemen at the University of London, the large number now being educated at the Hospital is not surprising. St Bartholomew's, which runs its rival very close, also prides itself on the equally respectable rank attained by the students at Oxford and Cambridge.—*Medical Times and Gazette*.

FINANCIAL CONDITION OF THE ROYAL COLLEGE OF SURGEONS OF ENGLAND.

THE Council has just published the annual return of the receipts and expenditure of this institution, from which it appears that the former amounted to £12,410, 1s. from Midsummerday 1862, to Midsummerday last, derived principally from examinations for the diploma of member, which produced £9384, 15s. The Fellowship gave £409, 10s. The Dental Certificate appears to answer very well, as it increased the funds by £514, 10s. The License for Midwifery, however, produced only £191, 2s.; but then the fee is only three guineas, and

sometimes but two, whereas the members of the Dental profession, being a rich community, are required in all cases to pay ten guineas for having the collegiate mantle thrown around them. The rent from the chambers in Lincoln's-inn-fields brought in £678, 11s. 6d. The purchase of this property some few years since for the purpose of increasing the Museum and Library, appears to have been a very judicious investment of the College funds. The disbursements amounted to £12,418, 17s. 1d., or £8, 16s. 1d. in excess of the receipts. The College department, including fees to counsel, examinations for diploma of member, dental and midwifery boards, auditors, fellowship diploma stamps, lists of members, coats, salaries, wages, etc., absorbed £7585, 5s. The Museum department, including catalogues, specimens, spirits, bottles, salaries, wages, etc., cost £2324, 18s. 3d. The Library department does not appear to possess such cormorant propensities as its sister department, for it is represented by the very moderate sum of £574, 8s. 8d., which includes not only the purchase and binding of books, but salaries, etc. How the late Sir Anthony Carlisle would have expressed himself at this economy may be imagined, for he has been heard to say, "Hang the museum, let us have a good library; the museum is only the illustrations to the books." The balance at the College bankers on Midsummerday last amounted to £3081, 1s. 4d.—*The Lancet*.

INCREASE OF TYPHUS FEVER IN THE METROPOLIS.

WE regret to learn that during the last few weeks there has been a great increase of typhus fever in London. In the *Lancet* for April 17th, of this year, attention was called to the circumstance that typhus fever, after having well nigh disappeared, had again been epidemic in London since December 1861. In the summer of the present year the epidemic greatly subsided, so that at the end of July the number of cases of all fevers in the London Fever Hospital did not exceed eighty. At the present moment, however, the Fever Hospital contains 190 patients, almost all of whom are suffering from typhus fever of a severe form, and many applicants have been refused admittance for want of room. The committee of management have now under consideration a plan for increasing the accommodation of the hospital by the erection of temporary buildings of wood or iron. This proposal, if carried out, will confer an immense benefit on the community. The physicians of the Fever Hospital, Dr Murchison and Dr Buchanan, have addressed a letter to the medical officer of the Privy Council, calling his attention to the alarming increase of typhus, and to the necessity of making provision for an epidemic of considerable magnitude during the coming winter.—*The Lancet*.

ANDERSON'S UNIVERSITY, GLASGOW.

DR JAMES G. WILSON has been unanimously elected to the Glasgow Andersonian Chair of Midwifery, in room of Dr Paterson, resigned.

THOMASON COLLEGE, ROORKEE.

DR MURRAY THOMSON, late Lecturer on Chemistry in Edinburgh, has been appointed Professor of Experimental Science in the Educational Department of the Thomason College, Roorkee,—a town situated between the Jumna and the Ganges, in the Saharunpore district of the North-Western Provinces of British India.

POISONOUS PLANTS OF SOUTH AMERICA.

Great care was necessary in selecting spits for roasting the beef, on account of a most poisonous shrub, the deadly *guachamáca*, abounding there. It belongs to the extensive family of Apocineæ, or dogbanes, whose poisonous qualities are known all over the world. So virulent is this poison, that meat roasted on spits made from the *guachamáca*, absorbs sufficient poison to destroy all who partake of it. The lazy Indians make use of it to kill without trouble the cranes and herons on the borders of the lagoons. For this they procure a number of sardines, besmear them with the juice of the plant, and spread them along the places frequented by those birds. The moment one of them seizes the fish, and before it is fairly swallowed, the bird drops dead; then the indolent hunter, issuing from his hiding-place, cuts off the parts affected by the poison, usually the head and neck, and feels no scruple in eating the remainder.

A dreadful case of poisoning by means of this plant had just occurred at Nutrias, soon after our arrival on the Apure, which created for a time great excitement, even amidst that scattered population. A woman who lived with a man in the vicinity of that town became jealous of the attentions he bestowed upon a charming neighbour of theirs, and determined to avenge herself, but in some manner that would not excite suspicion. In those remote regions, where coroners and chemists are unknown, it is impossible to detect murder, except where marks of external violence are visible. Accordingly, she prepared for her lover a bowl of *masato*, a favourite beverage of the country, made of Indian corn boiled, mashed in water, and fermented. In this she soaked chips of the poisonous plant, and offered it to him with smiling grace. Delighted at the sight of the tempting bowl, the unsuspecting lover invited several of his neighbours—among them the hated rival—to share it with him. The woman, not intending to destroy any but her perfidious lover, during his absence prepared another bowl, omitting this time the poison. Llanero politeness obliged the host, however, to mix his portion with the others, which having done, he invited the company to dip their calabash cups into the bowl. Out of eleven persons there assembled, among them several children, not one escaped except the wicked perpetrator of this wholesale murder; nor even the donkeys and fowl of the household, as their attentive master had thrown them the remains of the deadly mixture.

Such is the dread in which the Llaneros hold this plant, that I was not even permitted to preserve the specimens of fruit and flowers I had collected, with the object of ascertaining, on my return to the Valleys, the botanical characters of the species. They almost threatened to desert, if I insisted upon carrying them among my baggage.

The propagation of this plant throughout the Apure appears to be of recent origin, none of the oldest inhabitants recollecting to have met with it until within a comparatively short period. . . .

Another singular practice obtains among the Llaneros. It is that of inoculation with the juices of certain plants possessing alexipharmic virtues, after which the most poisonous snakes may be handled with impunity. It is asserted, moreover, that *cerrados*—as individuals thus inoculated are termed—are not only proof against the bite of these reptiles, but can attract them around their persons by merely clapping of hands or whistling for them in fields where they abound. Having never witnessed any of these experiments, I will neither undertake to uphold the truth of this assertion, nor will I question its veracity; but there are hundreds of reliable persons in the country who will unhesitatingly swear to its efficacy. Among them is the testimony of Dr Benites, a professional gentleman who has published the result of his experiments in a small book on the *materia medica* of the country. With the view of ascertaining the alleged properties of the guaco, he devoted much time, while at La Victoria, in experimenting with various kinds of snakes. From him I quote the following passage:—"The guaco possesses in a high degree the faculty of preserving man and animals in general from the terrible and fatal effects of the

bites of serpents. This valuable secret, discovered in Bogota by the celebrated naturalist Don Celestino Mutis, in 1788, remains still as such among some *curanderos* of our own country, who, under certain mysterious forms, and availing themselves of the fangs of serpents, puncture several slight incisions in certain parts of the body, which they fill with the powdered leaves of the guaco previously made dry, and administer the same internally, mixed in common rum. This property of the guaco is so reliable, inoculation by means of the juice, such as was practised by Mutis himself, so well authenticated, and the facts concerning it so well attested, that there cannot longer exist the least doubt in regard to its efficacy. I wished to convince myself by actual experiment, and can testify that in a thousand trials of inoculation, practised by myself in different ways on patients whom I allowed to be bitten by various kinds of snakes, I never knew one to fail. Suffice it to say, that the principal amusement of children in this place is to catch, carry about, and play with snakes, and that even young ladies keep them in their bosoms, or coil them around their necks."

The guaco is employed, moreover, in various other disorders of the system with great success. In chronic rheumatism it is an invaluable remedy, both in the form of poultices made of the fresh leaves, or by simply rubbing the part affected with a decoction of the plant in spirits, and taking internally one or two ounces of the expressed juice, morning and evening. Administered in the latter form, it is an efficacious remedy against hydrophobia, if given immediately after the person has been bitten by a mad dog. General Paez was thus saved, when a youth, from this dreadful scourge of tropical countries. He has, nevertheless, retained in after life some evil effects of the virus still in his system, manifesting itself in a tendency to severe spasmodic affections, especially at the sight of a snake, which invariably induces violent convulsions.—*Wild Scenes in South America, by Ramon Paez.*

THE THREE PANACEAS.

APROPOS of the recent discussion on tobacco and the possible series of misfortunes and diseases arising from its use, of which blindness is the least, and dyspepsia and angina pectoris merely accessory incidents, a learned and accomplished correspondent, Dr Diamond of Twickenham, has forwarded to us a note concerning the views of some erudite physicians of the time of Charles II., which possess some antiquarian interest. If tobacco be admitted as one of the luxuries of life which are baneful almost in proportion as they are pleasant, wine is certainly yet more fertile in evil to its votaries. Nevertheless, both have found, not only their apologists, but devoted panegyrists in the ranks of medicine. Dr Diamond recalls the curious circumstance that about the time of Charles II. three physicians wrote each a book propounding a panacea for all evils. Their purport will be judged from the titles. The first was entitled "Panacea, or a Universal Medicine; being a Discovery of the Wonderful Virtues of Tobacco. 1659. By Dr Giles Everard." The learned doctor practised what he preached, and on the frontispiece is presented a portrait of the author, in the fullest-blown dignity of his robes, smoking a portentous pipe. He was outdone by Dr Whitaker, who published "The Tree of Human Life, or the Blood of the Grape; proving the possibility of maintaining Life from Infancy to Old Age by the use of Wine." But this courtly physician of the merry monarch was in turn surpassed by Dr Johannes Archer, also physician to the king, who, in 1673, published his "Great Venus Unmasked," in which he propounded as a means of preserving and prolonging life something at which we cannot hint. Perhaps it is only by reading these three curious, and, fortunately, somewhat scarce books that an idea can be formed of what clever and mistaken advocacy can do to make the worse appear the better cause.—*The Lancet.*

THE LYING-IN HOSPITAL OF ROME.

THE Lying-in Hospital of Rome, *San Rocco*, is connected with the Foundling Hospital, and consists of one great hall and several chambers, one of which is appropriated to births. It was originally established in 1500, with fifty beds, partly for medical and partly for surgical cases; it was, however, changed from its original destination and converted to its present purpose by Clement XIV. in 1790. It has at present from thirty to forty beds, each bed having a curtain and screen, so that the occupants are not seen by the others. All who apply are received without any questions being asked; some with their faces covered with veils, which they are not required to remove. On the register they are only known, as guests at a hotel, by their number. No one is allowed, unless by special permit, to enter the hospital, except the physicians, nurses, and attendants. Many are received at a considerable period before their confinement, so that their condition may not be suspected by their friends. If able to pay a small sum they have superior accommodation; and when they are well enough to leave the institution they pass out by a passage in the rear, through an unfrequented street, and thus escape all danger of detection. If they wish to reclaim their children at some future time, some distinguishing mark is put upon them. But the children generally are sent to San Spirito. Usually patients are received only a few days previous to delivery, and they remain, on an average, about one week after confinement. It is supported partly by its own revenues and partly by the State, like the other public institutions of Rome.—*American Medical Times*.

PUBLICATIONS RECEIVED.

- Aitken.—Pulmonary Lesions with Syphilis. By W. Aitken, M.D.
 Beale.—Urine, Urinary Deposits, and Calculi. By Lionel S. Beale, M.D., etc. Second Edition. London, 1864.
 Bryant.—The Surgical Diseases of Children. Lettsomian Lectures, 1863. By Thomas Bryant, F.R.C.S. London, 1863.
 Canton.—On the Arcus Senilis, or Fatty Degeneration of the Cornea. By Edwin Canton, F.R.C.S., etc. London, 1863.
 Consumption and Diseases of the Chest, Second Medical Report of the Hospital for. London, 1863.
 Ewart.—A Review of the Treatment of Tropical Diseases. By Joseph Ewart, M.D. Parts 1 and 2. Calcutta, 1861-63.
 Gibb.—The Laryngoscope. By George Duncan Gibb, M.D. London, 1863.
 Guy's Hospital Reports. Third Series, vol. ix. London, 1863.
 Heath.—Introductory Lecture at Westminster Hospital. By Christopher Heath, F.R.C.S. London, 1863.
 Hewitt.—Diagnosis and Treatment of the Diseases of Women. By Graily Hewitt, M.D., etc. London, 1863.
 Kirkes.—Handbook of Physiology. By W. S. Kirkes, M.D., etc. Fifth Edition. London, 1863.
 Lunatic Asylum at Montrose, Report of, and Appendix, 1863.
 Meyer.—Du Strabisme. Par E. Meyer, D.M. Paris, 1863.
 Neubauer and Vogel.—Guide to the Qualitative and Quantitative Analysis of the Urine. By Dr C. Neubauer and Dr J. Vogel. Translated by W. O. Markham, F.R.P.L. (New Syd. Soc.) London, 1863.

PERIODICALS RECEIVED.

- Births, Deaths, and Marriages, Monthly Return of, for September 1863.
 British and Foreign Medico-Chirurgical Review,—October. London, 1863.
 British Medical Journal,—Oct. 3, 10, 17, 24. London, 1863.
 Bulletin Générale de Thérapentique,—Liv. 1 to 6. Paris, 1863.
 Dublin Medical Press,—Sept. 30; Oct. 7, 14, 21, 28. 1863.
 Gazette des Hôpitaux,—Nos. 111 to 124. Paris, 1863.
 Gazette Hebdomadaire de Médecine, etc.—September 25; October 2, 9, 16, 23. Paris, 1863.
 Gazette Médicale d'Orient,—Sept. Constantinople, 1863.
 Gazette Médicale de Paris,—Nos. 39, 40, 41, 42, 43. 1863.
 Glasgow Medical Journal,—October 1863.
 Journal de Médecine et de Chirurgie,—October. Paris, 1863.
 Medical Critic and Psychological Journal,—No. 12, October. London, 1863.
 Medical Times and Gazette,—October 3, 10, 17, 24. London, 1863.
 Medizinische Jahrbücher,—Parts 2 and 3. Vienna, 1863.
 Revue de Thérapentique Medico-Chirurgicale,—October 1, 15. Paris, 1863.
 Vierteljahrsschrift für die praktische Heilkunde,—Vol. 3. Prague, 1863.
 Wochenblatt der Zeitschrift der Aerzte,—Nos. 29 to 35. Vienna, 1863.

Part First.

ORIGINAL COMMUNICATIONS.

ARTICLE I.—*Naval Medical Contributions.* No. II. By ALEX. E. MACKAY M.D., R.N., F.R.S.E., M.R.C.P., etc., etc.

Dysentery.

THE area of the most virulent operation of dysentery is confined within such narrow geographical limits as, practically, to give this disease but little statistical importance, excepting on the East Indian and China station. Even on that station, moreover, the limits of its operation are so narrow, as to be very much confined to the Canton River and its immediate vicinity. If it be true, then, that its ravages are confined within so limited a circle, and if it can be shown that the total loss to the public service is greater from this disease than from any other whatever, some conception will be obtained of the fearful havoc it creates within the sphere of its pestilential influence, and of the justice of its claim to be considered perhaps the greatest scourge of the naval service.

The diseases which occasion the greatest mortality, and the largest number of invalidings in the naval service, are—fevers, dysentery, phthisis, and rheumatism. In order to show the comparative loss to the public service from each of these diseases, I have compiled the following table from the Statistical Returns of the Health of the Navy, for the years 1856, 1857, 1858, and 1859:—

Years.	Dysentery.		Fevers.		Phthisis.		Rheumatism.	
	In-val ded.	Dead.	In-val ided	Dead.	In-val ided.	Dead.	In-val ided.	Dead.
1856	19	64	25	199	103	131	92	7
1857	146	141	33	83	188	129	161	"
1858	339	252	98	149	242	79	162	4
1859	179	110	29	153	262	113	181	3
Totals,	683	567	185	584	795	452	596	14
Total Loss to Service by Deaths and Invalidings, }	1250		769		1247		610	

Of the 567 deaths from dysentery during those four years, 500 occurred on the East Indian and China station alone; and on the same station 610 of the invalidings occurred out of the 683. Or, to state the matter as regards the mortality differently, and according to the plan adopted by Dr Bryson in the Return for 1859:—

In 1856, in a force of 3410 men on the East Indian and China station, there were 48 deaths from dysentery, against 16 in 48,320, on all other stations.

In 1857, in a force of 7,080 there were 123 deaths, against 18 in 35,390.

" 1858,	"	"	11,300	"	"	239	"	"	13	"	31,820.
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" 1859,	"	"	6,600	"	"	90	"	"	20	"	46,225.
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Of all the cases of dysentery occurring during those years on the East Indian and China station the vast majority of them had their origin at Hong-Kong or in the Canton River; and my own experience would lead me to infer that the majority of those attributed to Hong-Kong might be traced to service in the river.

For all practical purposes, dysentery is best divided into the two varieties, sporadic and epidemic. The former is a simple inflammatory disease, affecting chiefly, and almost exclusively, the large intestine, most commonly occurring in the acute form; and, according to Hardy and Behier (*Traité Elementaire de Pathologie Interne*, tom. ii. p. 322), only distinguished from enteritis by the bloody stools. Epidemic dysentery, also an inflammatory disease, generally occurs in a sub-acute or chronic form, and is always engrafted on a constitution suffering from some depressing influence, such as malaria or scurvy. This variety may occur in the very acute form, but it rarely does so, I think. In a four years' experience of the Royal Naval Hospital in China, I can only recall to my memory one case in which the onset of the disease was that of very acute dysentery; and in that case, I rather think, the patient, a medical officer, had not been exposed for any length of time to malarial influence, and the seizure might, therefore, with more propriety, be looked upon as belonging to the sporadic variety. As epidemic dysentery is the form which causes almost all the mortality and invaliding in the service, it will form the chief topic of this contribution, and I shall, therefore, dismiss sporadic dysentery with a very brief notice.

Sporadic Dysentery.—Hardy and Behier, in their admirable article on dysentery (*op. cit.*), have stated so fully the possible causes of the sporadic form of this disease, that I make no excuse for giving them here. They say:—"If an individual of an ordinary constitution, subject to intestinal affections, or making immoderate use of drastic purgatives, or intestinal excitants, indulges too freely in fruits, especially if they are not quite ripe, or if he take a very large quantity of acid drinks, of lemonade, or of whey, for example, he will, especially if subjected to alternations of heat and cold, such

as are observed in autumn, be seized with a true dysentery." They go on to say, that besides these causes, and independent of hereditary tendency, age, or sex appearing to have any great influence in the matter, impoverished diet and exposure to heat and cold, and especially to damp cold, will produce the same effect. Sudden immersion, also, in cold water, or taking a quantity of very cold drink, the body being in a state of perspiration, may determine the same affection; as also, the use of putrid food, of stagnant or muddy water, of beer, of cider, or of sour milk.

Putrid emanations, also, from various sources, have been observed to occasion an attack of dysentery in persons exposed to them, and the various examples given by them, are, they say, only exaggerations of the colics and malaise which are sometimes experienced by those engaged in anatomical studies, the symptoms which they induce appearing to be the result of a true infection. They also mention the abuse of alcoholic drinks as a cause of dysentery under certain circumstances.

Such are the various causes which operate in the production of sporadic dysentery. I shall notice those only which have an especial bearing upon the habits of seamen.

It is much to be regretted that no underclothing of a character adapted for tropical climates has yet been supplied to the seaman. By a salutary regulation or custom of the service, every blue-jacket is obliged to wear a flannel shirt next his skin, and that this article of dress is worn, is carefully seen to at every inspection, by the officer of the division to which he belongs. Unfortunately, however, the flannel which is supplied by the service is of such a quality as to be almost quite unbearable in the extreme heat of the tropics, where the skin becomes so irritable as frequently to resent almost any clothes whatever, and where prickly heat (*lichen tropicus*) makes a fearful addition to a man's sufferings. So far as I am aware, there are not two kinds of flannel supplied to the service, and although for temperate or cold climates, the flannel now issued may be borne in the colder seasons, I can imagine no torture more severe than having to wear this material during the fearful heats which prevail in the hot season in the Canton River and at Hong-Kong. The dress of the man-of-war's man in the tropics is a pair of white trousers, a white frock or jumper, and this flannel shirt. The trousers are made, as a rule, very tight round the waist, no braces being used, and the frock and the flannel are tucked inside them. A jumper is a short kind of loose frock worn outside the trousers. In the evening, when the order to "shift clothing" is given, a blue serge frock takes the place of the white frock, and instead of the white trousers a pair of blue trousers, sometimes made of what is called dungaree, is substituted.

In the hot close evenings in the tropics, when there is not a breath of wind stirring, the watch on deck may be seen lying in all direc-

tions, sleeping, or trying to sleep. Every man is more or less bathed in perspiration. The heat is so insufferable that clothes, however light they may be, appear to be insupportable, and amongst the first things the sailor does before lying down, is to pull his frock and flannel up, partly to relieve the tightness of the waistband of his trousers, partly to allay the irritation caused by the perspiration which has collected there in such quantity as to keep that part of his dress quite wet, and partly with the hope of procuring a little coolness. In this state he lies down, and soon in his restlessness he pulls the frock and flannel a little higher up, and at length about a hand's-breadth of the body above the waistband is exposed. Every part of the skin is perspiring profusely. By and by, as he lies sleeping restlessly—for the heat is too great to admit of calm, quiet sleep—a gentle air steals along the surface of the water, and passes over the sleeper. To those who are awake it is deliciously refreshing, and the atmosphere is felt to be sensibly cooler. The sleeper is lulled by it into a deeper sleep. The breeze, as it continues, freshens a little; the exposed skin of the sleeper, from being hot and bathed in perspiration, becomes dry, and finally chilled, and in a very short time he awakes griped, and perhaps sick, and so commences, very frequently, an attack of sporadic dysentery. This is by no means an uncommon source of this form of the disease. In the same manner, also, after any severe exercise, either aloft or at the guns, the amount of perspiration which collects at the waistband is so great, that the trousers and frock in the neighbourhood of that part of the dress are literally soaking wet. The sailor, when the drill or duty is over, will have recourse to any means that appear most readily available for cooling himself, and the mouth of a windsail, or an open port into which a breeze is blowing, will be looked upon as a great luxury. The effect upon the reeking waistband may be imagined. By evaporation, the parts underneath soon become perfectly chilled, and dysentery is by no means an unlikely result of this thoughtlessness. In all climates (for I have seen this occur when we were in the vicinity of icebergs), a very possible cause, also, of sporadic dysentery is the exceedingly common and most objectionable custom which prevails among seamen, of jumping out of their warm hammocks at night and running up to the "head," with no clothing on them, but their shirt and flannel. Dysentery is only one of the very many serious affections which are liable to arise from this practice, than which there is none so commonly winked at on board ship, which is fraught with the most disastrous consequences, and which ought, therefore, to be put down in the most determined manner.

Such are among the most common methods in which the alternations of heat and cold operate in producing sporadic dysentery among seamen. They may be looked upon, on the whole, as among the everyday habits of this class of men, and, unfortunately, on this

very account, are liable to be considered as of less significance than if they were more exceptional. Other modes of the application of this influence will, of course, induce similar results, and there are many modifications of the varieties I have enumerated, which will, no doubt, occur to the recollection of medical officers; but I think I have said enough to indicate the possible sources of very many of the cases of sporadic dysentery, which occur among men-of-war's men.

As a rule, and this applies especially to large ships, the articles brought alongside in the bumboats are subjected to a tolerably close scrutiny, and it is not very common to find eatables in them which are of very inferior quality. Sailors are shrewd enough in matters of this kind, and are sometimes captious to a degree when they suspect any attempt to impose upon them. Unfortunately, they are not often equally discriminating in their judgment with regard to the fruits that are brought alongside to be sold, and a careful look-out requires to be kept upon these articles accordingly. That which is eaten in greatest quantity, perhaps, which is most liable to be unripe, and which of all fruits is most pernicious, is the common plum—the “kill-john” as it is not inappropriately called. I have grave doubts whether this fruit ought ever to be allowed to come alongside a ship, and the strictest surveillance should certainly be maintained with regard to it. In a hot climate, where the powers of digestion are impaired, and the mucous membranes highly irritable, I know no fruit more likely to occasion sporadic dysentery than this, if eaten in the unripe state, and especially in the large quantities in which it is eaten by some men.

The deleterious influence of alcoholic drinks, and their occasional share in the production of dysentery, cannot be doubted. It may be questioned, however, I think, whether in the majority of cases in which dysentery follows upon a heavy debauch among seamen, it may not have been more dependent upon the exposure, and other circumstances following in the train of the dissipation, than upon the spirit itself. There are two species of alcoholic poisons, however, against which the men should be especially warned. The one, the vile samshu, which used to be sold in the regions of the Taipinshan, at Hong-Kong, the other the “hocussed” drink, which is notoriously given at the present day to noisy sailors, by the unprincipled grog-shop keepers of Malta. That both of these are calculated to induce dysentery there cannot be the least doubt; and I have seen very urgent symptoms, indeed, arise from the latter poison. Although I frequently tried to do so, I regret I was never able to procure a specimen of this drink for analysis. Those who keep it are too sensible of the penalties that are likely to be attachable to the fact of their making use of it being known, to allow themselves to be readily found out.

Epidemic Dysentery.—The term epidemic dysentery is employed

to express that form of the disease which exists in patients whose constitutions are affected by some depressing influence, such as malaria or scurvy. While the fact of the disease being liable to appear extensively amongst men so circumstanced entitles it to the specific appellation it has received, it is to be distinctly understood that its occurring as an epidemic is by no means absolutely necessary to constitute this variety of dysentery, which may occur, and does often occur, in isolated cases. Pathologically, indeed, epidemic dysentery is in no respect different from sporadic dysentery, excepting in its being engrafted on a cachectic state of the system. The causes which induce sporadic dysentery, will, *à fortiori*, induce epidemic dysentery, the morbid changes which are occasioned by the one variety only differing from those induced by the other in proportion to the more or less cachectic condition of the patient. Hardy and Behier, it is true, state that the lesions which are observed as belonging to dysentery are different according to whether the disease is sporadic or whether it has assumed the epidemic form. But it will be remarked that the only difference they mention is, that the morbid changes found in sporadic dysentery only form the first degree of those that are observed in the epidemic state. And this is only what might have been anticipated. When sporadic dysentery proves fatal in its acute stage there has not been time for the grave organic changes to occur which are found in the subject who has been exposed to the poisonous influences of malaria, and whose tissues are predisposed, in consequence, to become rapidly disorganized, or in whom, the disease assuming a less acute form, and death occurring after a more lengthened period of suffering, there is abundant time for the most extensive disorganization to take place. In proportion as a case of sporadic dysentery is lengthened out, and the period of the fatal event is delayed, so will the disease assume more and more the epidemic character, and the changes will be found to be in no respect different from those which obtain in cases of decided epidemic dysentery.

Epidemic dysentery prevails to a greater or less extent in all countries in which malarial fevers are endemic. It will be found to abound in largest numbers and in its greatest intensity in those malarial districts where there is a very high temperature with moisture, and a liability to alternations of heat and cold. In the Canton River and its immediate vicinity these conditions exist in a very exaggerated degree, and that locality is in consequence the most prolific of periodic fevers and dysentery of any in the world. The following table, compiled from the Statistical Returns of the Navy, will show the proportion of fevers and dysentery on the different stations during the years 1856, 1857, 1858, and 1859 :—

STATIONS.	1856.		1857.		1858.		1859.		TOTALS.	
	Fever.	Dysentery.	Fever.	Dysentery.	Fever.	Dysentery.	Fever.	Dysentery.	Fever.	Dysentery.
Home	209	15	267	18	561	12	785	39	1822	84
Mediterranean . . .	843	56	377	37	295	11	815	81	2330	185
N. Amer. & W. Indies	1681	8	491	5	868	15	384	20	3424	48
Brazils	254	8	156	6	143	2	53	4	606	20
Pacific	134	5	66	13	124	10	324	52	648	80
W. C. of Africa . . .	274	20	430	32	532	10	528	3	1764	65
C. of Good Hope . .	22	23	48	11	108	1	77	7	255	42
E. Indies and China .	690	293	4317	470	8561	990	3473	546	17,041	2299
Australian	17	28	...	12	13	3	64	5	94	48
Irregular Force . . .	368	19	969	29	282	16	424	30	2043	94
Totals	4492	475	7121	633	11,487	1070	6927	787	30,027	2965

The chief interest attachable to this table consists in its giving a view of the enormous numbers of fever and dysentery occurring on the East Indian and China station as compared with any of the other stations. With regard to the fevers, it may be mentioned that it is only on the China station that the purely malarial fevers preponderate. (I shall, for the future, in this paper, only make use of the term China station when I refer to the East Indian and China station, for it is only the Chinese portion of the station that has any important bearing upon the subject of this contribution.) In the tables given in the Statistical Returns of the Navy, it has not been found possible to separate continued from remitting fevers, and as the causes operating in the production of these two varieties of fever are very different, and this difference is the essential feature in the relation between dysentery and fever, the table is, of course, in this respect very defective. Of the 17,041 cases of fever occurring on the China station, however, during the four years, 10,084 were cases of intermittent fever, and if we allow one-third of the remaining 6985 cases of continued and remittent fevers to be of malarial origin—not an undue allowance on such a station—we shall have 12,403 cases of malarial fever on that station alone. With respect to the other stations, it is impossible to say how many of the cases coming under the head of “Continued and Remittent” fevers may have been non-specific, specific, or malarial; but it is more than probable that most of them were non-specific, coming under the head of ephemeral fever, and dependent upon insolation, fatigue, surfeit, or any of the many causes of this kind of affection.

Another circumstance which in some measure impairs the strictly statistical value of this table is the fact, that very many of the cases of dysentery which are entered on the Home, Australian, and Pacific stations, and in the Irregular Force, were in all probability con-

tracted in China. These defects, however, do not seriously interfere with the object of the table, which is to show, that where there is the greatest amount of exposure to the influences which operate on the production of malarial fevers, with a high thermometrical range, much moisture, and a liability to sudden changes of temperature, there will be the largest number of cases of epidemic dysentery.

But, it may be asked, why should malarial fevers and dysentery abound more on the China station than on the West Coast of Africa, where the endemic fevers are malarial, and the thermometrical range is as high as it is in China?

One probable, indeed the most probable, source of the notorious pre-eminence which the China station has obtained for fever and dysentery, is the circumstance that a great deal of the service there is river service. Next to being stationed on shore in a malarial district, nothing can be more pernicious than being stationed in a river surrounded by marshy emanations on every side. The Canton River has, for many years, been a station in itself for ships of war, and there they lie, sometimes for months, without being relieved. On the West Coast of Africa, on the other hand, river service has, for a long time past, been as carefully avoided as circumstances will admit of, and ships on that station communicate with the shore as seldom as possible. Their chief duties are cruising off the principal rivers and suspected parts of the coast, and it is astonishing how short a distance from the land serves as a protection from malarial poison and exerts a salutary influence upon those who have been suffering from malarial diseases. In the Statistical Return of the Health of the Navy for 1859, Dr Bryson makes the following remarks on this point:—"The absence of climatorial disease in vessels cruising a few miles distant from the African coast has been frequently noticed in these reports, and another remarkable instance occurred during the present year in the *Medusa*. This vessel was stationed during the entire year in the Bights of Benin and Biafra, but principally off the coast between Cape St Paul and Lagos. In consequence of the heavy surf, which prevents landing on the beach, the crew had little or no communication with the shore, and no boats were detached from the ship on distant service, consequently there was not a single case of primary fever during the entire year; for, although one case appears in the Returns, the patient belonged to the *Brune*, and the disease was contracted in the lagoon at Lagos. There were nineteen cases of an aguish character, but several of these were mere repetitions, in the same person, of fever previously contracted during the preceding year in the river Congo.

"The constant occurrence of fever amongst men who have been exposed on shore, or in boats near the shore, and the almost total absence of fever in cases similar to the above, shows clearly enough how much the health of the station may be influenced by the nature of the duties required of the force."

The advantages of a removal to a short distance from the land

were fully appreciated at Hong-Kong during the severe epidemic of remittent fever which devastated that island in 1850, and almost completely disabled the 59th Regiment. The Alligator was given up to the military as a sanatorium, to which they sent as many convalescents as could be accommodated in her, and subsequently the Hercules was sent out by the Admiralty to be employed as a floating hospital by the troops. While the disease was raging like a pestilence on shore, it was almost quite unknown afloat, the few cases that did occur in the ships having been contracted by thoughtless exposure on shore. Even in the Canton River the men on board ship did not suffer during the late operations there so much as the men who were landed for shore service, the short distance between the ships and the shore, even in this instance, appearing to have some modifying influence. From the Bogue Forts, however, up to the Factories, the highest point at which our ships anchor, nature and art seem to have contrived to render the place a perfect hotbed of malaria, and it therefore cannot excite astonishment if ships stationed for months in such a locality should furnish enormous bills of mortality and disease.

Another circumstance which may tend to act injuriously upon men exposed to malarious influences is the depressing nature of the service upon which they may be employed. In the Canton River the duties of the men are mostly of a very monotonous character. The treacherous and hostile disposition of the Chinese forbids anything like exercise on shore, and day after day, and week after week pass in the same dull routine of duty on board. When to this state of matters are superadded the extreme exhausting heat, from which, during the hot months, there is no relief by day or night, and the baneful influence of the poisonous atmosphere, the system is very liable to be reduced to such a degree as to be readily and most fatally acted upon by any of the ordinary excitants of disease. Hardy and Behier notice (*op. cit.*, p. 324), as amongst the occasional causes of epidemic dysentery "*les influences morales tristes*," instancing nostalgia amongst soldiers, and the depression following a battle, dysentery having seized upon the conquered and spared the conquerors. Two very notable cases of this nature occurred in my own experience, both of them terminating fatally. One case occurred at Hong-Kong, and the other in Australia, and as I am on this subject, it may be as well to give their histories as briefly as possible here.

The first case was that of an officer who was in command of a large receiving-ship at Hong-Kong. He had been several years in command, and enjoyed very excellent health throughout. The officers who were serving under him had been with him for a considerable time, but by degrees, one after the other, they were removed by promotion, or some other exigency of the service; and finally, the one with whom he had been most intimate, and who had been longest with him, was promoted, and ordered to England. This

had a very depressing influence upon Mr M. (the officer in command), who immediately, in rather an agitated manner, went to the principal medical officer of the Naval Hospital and requested to be invalided, as, he said, he had been a long time on the station, and ought to be sent home. It was explained to him, in the kindest manner, that no one could be invalided unless labouring under actual disease, or so reduced by illness as to render his removal from the station advisable, and that, as he had always been in excellent health, and was then strong and well, no board of surveying officers would entertain his request for one moment. It was pointed out to him, however, that an application made to the Admiralty, or even to the commander-in-chief, through the senior officer present, would no doubt meet with the most favourable consideration, and that he would then be relieved in proper form. This did not satisfy him, however, he became much downcast, and said he would be dead before he was relieved. About a week after this I was informed that he was complaining a good deal, and looking very ill. I went at once to see him, and with some difficulty got him to admit that he was labouring under diarrhoea. He appeared to be afraid of anything being done to check the complaint, but agreed to be guided by what I told him to do, and to take the medicines sent to him. During the next two or three days, despite every effort to overcome the disease, it ran on its course unchecked—he began to fall off very much, and the stools became dysenteric. It was now ascertained that he had been seen throwing the medicines sent to him overboard. As his case was now one which called for some decided steps to save him, a special survey was applied for on his account. He was invalided, and a passage to England ordered for him by the first Peninsular and Oriental Contract Mail Steamer. Even this measure, however, did not seem to reassure him. His mind had become so morbidly affected that he appeared to be apprehensive that even then, should his symptoms improve, he might be retained, and he tried all he could to evade the measures that were being adopted for his relief. The result was that the dysenteric symptoms continued obstinately persistent, and he died at Singapore on his homeward-bound passage. Mr M. was an officer who had seen much service, and was between fifty and sixty years of age.

The other case is even more melancholy. It occurred at Hobson's Bay, the seaport of Melbourne, in the month of February 1855; and as the nature of the locality and its sanitary condition, as well as the season of the year, have all their bearing on the case, I shall insert here the remarks I made in my journal upon the place at the time.

"Hobson's Bay, forming the north-eastern extremity of Port Phillip, is a very considerable sheet of water, affording good anchorage to vessels, but rather exposed to a heavy sea during the prevalence of southerly winds, when it is open to the roll of the

whole expanse of Port Phillip Bay, an extent of about forty miles. On the west and north sides of the bay, the land is very low, and wet, and uninteresting; but it presents a more pleasant aspect on its eastern shore, where it lies rather higher, and the rapidly extending townships of St Kilda and Brighton, which are laid out with much taste, present a very picturesque appearance, and contrast favourably with the other shores. At the south-western extremity of the bay is Gellibrand's Point, close inside of which the men-of-war anchor. The anchorage is close to the western shore, on which the small seaport of Williamstown is situated.

"The climate of this district is exceedingly variable, and very trying to the constitution. During the greater part of January the changes of temperature were more extreme than I remember ever to have seen them in any part of the world. Hot winds on some occasions came off from the northward, raising the thermometer as high as 104° in the shade, and literally curling the paper on which we were writing, as if it had been placed before a furnace. These alternated with cold, raw weather, the change being so rapid as occasionally in a few hours to depress the mercury upwards of 40° . During the summer and autumn months, which may be said to extend from October to April, the weather is characterized by this extreme variability, whilst the winter and spring months are perhaps as remarkable for the constant rain and wind in which they abound, and by which the whole country is kept almost under water. It is almost unnecessary to remark, that such a climate is by no means a healthy one, and accordingly we find, that while during the hot months we have fevers, diarrhoea, and dysentery prevailing to a great extent, and causing considerable mortality, during the other months, rheumatic affections and diseases of the chest, although not proving so fatal, exist to a great degree, and exert a very lasting influence upon those affected.

"Dysentery prevailed during the past summer in an epidemic form both on shore and afloat. One medical practitioner in Williamstown, who is in very extensive practice, informed me that from that disease alone he had lost on an average a patient every day for upwards of three weeks."

On board the ship of which I was then surgeon we had five very severe cases of dysentery, and three of moderate violence. One of the severe cases is the following:—Lieutenant —, æt. 26, a young man of nervous and rather irritable temperament, of strictly regular habits, and temperate almost to abstinence, had had several disagreements with his captain, which were made the subject of an application for a court-martial. The commander-in-chief, however, being desirous of ascertaining that there were really grounds for ordering a court-martial, directed the senior officer on the Australian colonies to hold a court of inquiry on the subject, and make his report upon it; and, accordingly, Mr — was informed that a court of inquiry would be held on a particular

day. Although he professed, and, I firmly believe, felt, every confidence in the result of the inquiry being favourable to himself, I knew that it caused him much anxiety. On the day on which it took place, he told me that he had been reading over all the correspondence which had taken place upon the subject, but that during the afternoon he had been a good deal interrupted with a diarrhœa, which had existed to a greater or less extent for the two previous days, but which was now attended with a good deal of griping. I told him that I suspected the attack to be caused by mental anxiety, to which he replied that he thought it very probably was. I gave him some medicine, tried to withdraw his mind as much as possible from the subject which was fretting him, and recommended him to lie down during the whole evening. On the following day, however, he told me that the diarrhœa was unchecked; and he expressed great apprehension that as he felt himself quite unfitted to go before the Court, his absence might be attributed to other causes than the real one. On this subject I tried to set his mind at rest also, but he became much excited when he heard that the inquiry was going on in his absence. On the next day (the 18th February), his symptoms assumed the character of true dysentery, but were not by any means urgent. The stools continued frequent, and a little mucus having been observed in them, the astringent which he had previously been taking was stopped, and a pill composed of calomel, ipecacuanha, and opium was administered every three hours. He now stated that he felt an obscure sense of uneasiness when pressure was firmly applied over the sigmoid flexure of the colon. Twelve leeches were immediately applied over the part, and the bleeding encouraged by fomentations. Finally, the abdomen was swathed in a flannel roller. On the following day the purging still continued, the stools containing a little blood. Turpentine epithems were applied over the abdomen, and opiate enemata exhibited, which gave much relief. On account of nausea, the ipecacuanha had to be omitted from the pills. The stools continued to be voided without griping or tenesmus, but still contained blood and mucus. On the 23d, there being no appearance whatever of mercurial action, and the system appearing rather irritable, the mercury was stopped, and a recurrence had to vegetable astringents. Fomentations, alternating with poultices, were in constant use, and, on account of the persistent nausea, the liquor vesicatorius was applied over the epigastrium. Next day, the purging not appearing to be restrained by the vegetable astringent, a pill composed of acetate of lead and opium was substituted for it, the treatment otherwise being continued as before. No improvement, however, took place. The stools, although at this time reduced in number, continued of the same character; the pulse rose to upwards of 100, and he became very feeble. There was an entire absence of pain on pressure over the abdomen, nor did he suffer from tenesmus. On

the morning of the 27th, it is noted—"Passed an exceedingly restless night; bowels were moved three or four times, the stools being exclusively composed of blood. Has no tenderness whatever over any part of the abdomen. Tongue continues furred, but moist, and clean-looking at the edges. Pulse 123, weak. Has taken this morning a teacupful of arrow-root with port-wine. Debility is apparently great, and he complains of heat, although the weather is rather cool." During the day he continued very restless, and was four times called to stool, the dejections being scanty, and exactly resembling beef-washings. At night the dejections continuing unaltered in appearance, and exceedingly offensive, and there being some distention of the abdomen, a very small dose of rhubarb with camphor was prescribed. He was taking stimulants at this time. Shortly after taking the rhubarb and camphor draught, he became much quieter, but passed involuntarily a large quantity of sero-sanguineous matter. On the 28th, decided symptoms of sinking set in. The extremities became cold, and were bedewed with a clammy perspiration. Restlessness was extreme, but he retained full possession of his senses up to a late hour of the day. The dejections were more frequently passed involuntarily, and still retained the same appearance of beef-washings; the pulse became 130, and very weak. Delirium set in towards the evening, and he sunk exhausted at 8.45 P.M.

Post-mortem Examination.—Fourteen hours after death. *Body.*—Well formed, and but slightly emaciated. *Head and Thorax.*—Not examined. *Abdomen.*—At the caput cœcum coli the mucous membrane of the large intestine was much injected, and covered with small ulcerations. These increased in number, but remained distinct from each other until the commencement of the descending portion of the colon, where they became much increased in size, and the membrane itself was softened, and altered in colour to a dirty green hue. Towards the sigmoid flexure the ulcers became very large, the gut being entirely denuded of mucous membrane in large patches. In the midst of the disorganized tissue, small injected tufts were everywhere visible.

The small intestines were but little affected. The liver, spleen, and kidneys, were quite healthy.

Mr — had naturally rather a tendency to diarrhœa, and the nature of the attack which carried him off affords a very good illustration of the difficulties which have to be contended with in the treatment of dysentery, when that disease, occurring in a malarial locality and at a certain season of the year, is aggravated by a naturally weak state of the intestinal mucous membrane, and a morbid irritability of the nervous system. That the disease was rendered more malignant than it otherwise might have been by the mental anxiety and depression under which he laboured, I think there cannot be a doubt. There is no reason why, under other circumstances, the disease should not have run as favourable a

course as in the other cases which were under treatment at the time, most of which were of quite as severe a character, so far as the earlier dysenteric symptoms were concerned. One of the most striking features in this case, during a considerable part of the patient's illness, was the extreme indifference he displayed to everything that was going on around him.

Both of these cases, while they illustrate the dangers attendant upon depressing mental influences in malarial districts, also serve to show how insidious the approach of this form of dysentery may be. It is in the very nature of the agencies which constitute what is called malaria, to exert their influence in an insidious manner. It is true they may act very suddenly and very violently, as has been frequently noticed in the more malignant forms of the malarial fevers of Hong-Kong, and especially of Algeria, as noted by Maillot (*Traité de Fievres Intermittentes*), but this is not their common mode of action. There is a very close resemblance indeed between the action of malarial poison upon the human body, and that which is known to obtain in the case of exposure to the influence of material poisons. The blanched and cachectic appearance of the workman whose occupation exposes him to the deleterious influence of mercury or lead, is very much the same as that presented by the person residing for a length of time in a malarial district. In the latter instance, the natural healthy appearance becomes changed; the countenance becomes more or less blanched and sallow; the disposition is liable to become peevish, or morose, or uncertain; the appetite becomes capricious, and very often wanting; and there is a conscious falling off in vigour both of mind and body. So long as great care is observed in the mode of living,—so long as there is a watchful regard to avoid every circumstance likely to operate as an immediate excitant of disease,—and, especially, if agents are employed which have a known counteracting influence on the poison,—the exposed person may for many years, even in notoriously unhealthy localities, escape any very serious ailment. But should he, on the other hand, be careless or indifferent as to the nature of the locality he is in, then, sooner or later, he is almost certain to be attacked with some of the diseases peculiar to malarial districts.

As the action of mercury tells chiefly upon the glandular and osseous systems and that of lead upon the nervous system, and the intestinal canal, so the action of the malarial poison is in such a direction that the principal pathological condition which has been observed in connexion with it is splenic congestion; and it is to this circumstance that Dr Watson is inclined to attribute the opinion that has arisen as to dysentery and intermittent fever being alike attributable to malarious poison. He says—"The very frequent coincidence or alternation in some places of dysentery with intermittent fevers has given rise to the opinion that both these diseases are alike attributable to the malarious poison. But dysen-

tery prevails where there is no other evidence of the presence of malaria. You may recollect that when we were upon the subject of ague, I showed you that its repeated paroxysms were attended with extreme and increasing congestion of blood in the internal organs, of which congestion the tumid spleen—the ague-cake was an effect and token. Now, whatever gorges the splenic vein gorges its tributary the inferior mesenteric, which carries the blood from the rectum and descending colon. Upon such congestion of the mucous membrane, inflammation is readily engrafted, and in this indirect way dysentery may be said to result from marsh effluvia. Ague is an effect of malaria, and dysentery is sometimes a sequela of ague. In precisely the same manner dysentery is apt to supervene, in hot climates especially, upon hepatic congestions.” This is, of course, only illustrating one of the modes, and that a purely mechanical one, in which dysentery may indirectly be occasioned by malarial poisoning. It appears to me, however, to express the belief which Dr Watson entertains, and which, in his usual elegant and philosophical manner, he thus illustrates, that dysentery is not attributable to malarial poisoning in the same way that intermittent fever is, or that typhoid fever is attributable to decomposing organic matter—but that it is merely an accident prone to occur in the same localities where the malarial poison abounds, and where the body is brought in consequence into such a condition as to be more readily acted upon by the ordinary excitants of disease.

But a condition induced by long exposure to malarial poison, and attended by a less apparent pathological change than ague-cake, is that derangement of the general functions which is so often accompanied by an irritable state of the mucous membranes, and especially of those of the intestinal canal, and which is so liable to occasion congestion of these membranes. Rokitsky, speaking of the intestinal mucous membrane, says—“We may infer the general importance of this branch of pathology, from the rank the mucous membrane occupies in the economy, from the consequent frequency and the variety in the forms of its idiopathic affections, but more especially from the frequency of the secondary complications to which it is subject from the numerous relations which it bears to other systems and organs, and the fluids at large.” (*Patholog. Anatomy*, vol. ii., p. 62. *Syd. Soc. edit.*) One of these secondary complications, occasioned by the reaction upon the skin and mucous membranes of the peculiar climate about the Canton River, is that form of catarrhal inflammation or irritation of the intestinal canal which arises, as the same eminent pathologist states, as a consequence of suppressed cutaneous exhalation. The result of this is a diarrhoea of so little marked a character that it frequently advances to true dysentery long before its nature is recognised, or even its presence observed. At Hong-Kong, amongst the civil community on shore, one of the most treacherous and fatal forms of dysentery was frequently ushered in in this way. It began gently and imperceptibly,

the bowels being moved rather more than was their natural wont for days and even weeks together, but so entirely without uneasiness, the appetite continuing so good, and the functions of the body apparently acting in so healthy a manner, that the patient continued engaged in the duties of his station quite unaware that anything was the matter with him. At length, however, a few more stools than usual, with some griping, had the effect of drawing his attention to his condition, and then it perhaps occurred to him that he was not so strong as he used to be. Even then, however, it was seldom the medical man saw the case. The patient would go on treating himself, until at length, when he found he was making no progress, and the medical man was called in, the symptoms of disorganization of the gut were found to be fully established, and the sufferer was either removed from the climate, or sunk under a fatal marasmus—an evidence of the extent to which the mesenteric glands and the intestinal lymphatic system were involved.

In these cases, besides the pathological changes peculiar to dysentery, which always existed to a greater or less degree, the inflammation extended into the ileum, and occasionally ran on to great disorganization of that portion of the intestine. This was very rare however, although I shall mention a case presently in which it did occur. As a rule, injection and roughening of the mucous membrane of the ileum, near the ileo-cæcal valve, was the only change that was found. These cases were exceedingly intractable. The following is a brief narrative of one:—

Christopher Lean, æt. 21, stoker, belonging to H.M.S. *Salamander*, had been for some time subject to diarrhœa, and had also had occasional attacks of hæmetemesis. For this condition he was treated on board his own ship, and was convalescing favourably, when a renewed attack of diarrhœa, accompanied with great pain over the abdomen and vomiting, threw him back again, and he was sent to the Naval Hospital at Hong-Kong on the 18th June 1852. On his admission into Hospital, the following note was made of his condition:—"Bowels have been repeatedly moved to-day. Stools have consisted of blood and mucus, and have been voided with considerable griping and straining. Skin of moderate temperature. Pulse not of volume or force."

Calomel and opium, leeching, fomentation, and other remedies were employed against his symptoms. On the day following his admission, the stools were composed of muco-bilio-feculent matter, and he had less pain at stool. There was great tenderness, however, in some places over the abdomen, and especially in the line of the transverse arch of the colon. The purging continued despite the treatment, and even after the gums were affected there was no relief. Bilio-feculent stools, with muco-sanguineous fluid, were frequently passed, and he became much weaker. No benefit was obtained from any astringent. For some days before his death, he was put on a liberal allowance of wine. He sunk exhausted on the

evening of the 3d of July, having been slightly delirious during the early part of the day. He became quite collected however, and replied readily to questions for some hours before his death.

Sectio Cadaveris.—15½ hours after death; thermometer 82° Fahr. *Body.*—Well formed but somewhat emaciated. *Head.*—Not examined. *Thorax.*—The viscera in this cavity were quite healthy. The pericardium contained about an ounce of serum. Some fibrinous clots were present in the auricles. *Abdomen.*—Excepting some slight injection of the mucous coat at the small cul-de-sac, the stomach presented no abnormal appearances. The duodenum and jejunum were quite healthy, but the mucous surface of both these portions of the intestinal canal as well as of the ileum was coated with a tolerably thick layer of tenacious mucus which was deeply tinged with bile. The ileum, from about its middle to its termination, presented various appearances of inflammatory action, the injection being in some places of a generally diffused arborescent character, whilst in others it existed in well defined patches. In some places the mucous membrane was in a state of softening, and here and there clusters of enlarged mucous follicles were seen. Ulceration commenced immediately at the ileo-cæcal valve, and existed throughout the whole of the large intestine. The ulcers varied much in size, some of them being very large, and covered with sloughs, whilst others, both large and small, had completely denuded the intestine of its mucous coat. The submucous areolar tissue was found to increase in thickness towards the termination of the gut, and there the morbid appearances existed in an aggravated degree. The liver and kidneys were quite healthy. The spleen was somewhat enlarged.

In this case the disease was apparently of a mixed character, enteritis and dysentery being conjoined. The former condition may have preceded the latter, but upon this point it is quite impossible to form any other than a mere conjecture. There can be little doubt that its more acute symptoms were ushered in just before the patient was sent into hospital, and when he was apparently convalescing from the diarrhoea under which it is said he had been for some time labouring. Whether that diarrhoea was owing to irritation of the small intestines or of the colon, it is impossible to say. The advanced disorganization of the large intestine affords little clue to the solution of the difficulty, for in epidemic dysentery these morbid changes occur very rapidly.

In the following case the changes in the ileum were of the most formidable character:—

John Johnson, æt. 25, A.B., belonging to the Honourable East India Company's steam vessel *Semiramis*, was admitted into the Royal Naval Hospital at Hong-Kong on the 24th November 1852. The "case" which was sent with him is to the following effect:—" — has been on the sick list 'on and off' for the space of the last six or seven months, suffering from diarrhoea, and

occasional slight attacks of headache, attended with great debility and impairment of health. The diarrhœa comes on every two or three days, and is most severe during the night. He is purged from four to five times in the twenty-four hours. The following medicines have been administered with little or no benefit:—Mist. cretæ, tinct. kino, tr. opii, pil. hydrarg., ext. gentian, pulv. ipecac., ext. opii, hydrarg. c. creta, with pulv. ipecac. co. in alterative doses, and occasional purgatives of ol. ricini, and magnesia and rhubarb draughts. He also had quinine, chicken-broth, and port wine. Since my attendance on the ship, the stools have become dysenteric, and he voids large quantities of blood and slime," etc. etc.

On his admission into hospital the following is the report:—"Called to stool from five to seven times by night, and two or three times by day; voids scanty stools, with occasionally slime and blood; stool seen, since admission, scanty, fluid, feculent, of light hue. A little straining at times experienced; belly tumid; tympanitic; soft; pressure well borne. Some heaviness occasionally felt in right iliac region. He is much reduced, and feels very weak; countenance sallow; tongue clean, rather smooth; thirst; nausea; vomits occasionally in the forenoon acid fluid; appetite very good." He was ordered vegetable astringents, with beef-tea, rice, arrow-root, port wine, and occasionally a little fish. The stools for some time averaged only three, four, five, and six in a day; they varied much in consistence, but were usually fluid and bilio-feculent. Flatulence became a distressing symptom, and the stools began to increase to from seven to eleven daily, but they were occasionally as few as four and five. For some days before his death they were only three and four in number, but the progressing debility was very marked. He died on the 12th January 1853.

Sectio Cadaveris.—7½ hours post mortem; thermometer, 66° Fahr. *External Conformation.*—Body well formed. *Thorax.*—The viscera in this cavity were quite healthy. *Abdomen.*—A considerable quantity of serum was found effused in this cavity. The peritoneal surface of the small intestine in the hypogastric region was highly inflamed, and effusion of recent lymph had bound several of the convolutions together, as well as, here and there, the intestinal to the parietal peritoneum. The liver was slightly enlarged and congested. The spleen was healthy. The right kidney, which was smaller than the left, had a cyst about the size of a bean in its cortical portion; the gland otherwise was healthy. The left kidney was very large, and somewhat congested, but its structure was normal. The stomach, duodenum, and jejunum, were quite healthy. The latter portion of the intestine contained a large quantity of fluid bilious feculence. The ileum presented a very extraordinary appearance. In its upper portion it presented very little evidence of disease excepting softening and slight injection of the mucous membrane; but it suddenly, within about two feet of the ileo-cæcal valve, became one mass of disorganization. The valvulæ

conniventes, which were either naturally largely developed, or were much hypertrophied, formed prominent hard ridges across the tube, the mucous membrane covering them being either altogether gone, or much diseased, and both on the valves and in the spaces between them of a dirty green colour. The submucous areolar tissue was so much thickened and indurated as to impart quite a cartilaginous feeling to the walls of the gut. It was at this portion of the intestine that the peritoneum was so much inflamed. The large intestine from the ileo-cæcal valve to its termination was completely disorganized, and presented the usual lesions of advanced dysentery.

This is certainly a most unusual condition in which to find the small intestine; whether the rare circumstance of the presence of valvulæ conniventes at the lower extremity of the ileum had any effect in exaggerating the morbid condition of this part of the intestine, it would, perhaps, be difficult to say, but the association of so much disorganization with their presence is, to say the least of it, a remarkable coincidence. The autopsy, moreover, shows to what an extreme of disorganization the tissues may be brought, in countries where the climate exerts so deleterious an influence on the system generally. This was one of those cases in which there had been long exposure to the malarial poison.

Although there is no rule in the matter, it may be laid down as a fact of most common occurrence, that the longer exposure there has been to the malarial poison the more aggravated will the post-mortem appearances be found in persons dying from dysentery. It will also be found that if, superadded to this long exposure to the malarial poison, there be much fatigue and exposure to the direct rays of the sun in such a climate as China, the morbid changes will have a tendency to run on to gangrene. As an illustration of this I may instance the following case:—

Wm. Brampton, æt. 26, A.B., belonged to the Honourable East India Company's steam-vessel *Phlegethon*. That ship having got on shore in the Canton River, the whole of her crew were much exposed for some days working in the sun, in consequence of which considerable sickness prevailed amongst them, and this man, with some others, was sent down to Hong-Kong for hospital treatment. On his admission into Hospital the disease was of a week's duration; he was called very frequently to stool, the dejections being a "slimy fluid," voided with some griping and tenesmus; the skin was of moderate temperature; the tongue rather whitish; there was some thirst; the countenance had quite a natural expression, and he stated that he was quite easy excepting when at stool; the pulse, however, which could not be counted at the wrist, at the heart was reckoned to be upwards of 150. The mercurial plan of treatment, which was at first adopted, had to be desisted from, no mercurial action being induced after some days' trial of it. Opiate and astringent enemata gave some relief for a few hours, but the disease went

on unchecked. The stools were muco-sanguineous, with a little fluid feculence, and there was some tenesmus. Vegetable and mineral astringents, and various local applications, were tried without the slightest effect, and a few days before his death he complained of very considerable tenderness over the abdomen; two days before that event took place, a very sudden and aggravated attack of pain induced a suspicion that perforation had taken place. This was alleviated at the time by the application of turpentine epithems, and the administration of large opiates, but it recurred again on the same evening with increased violence, and was only partially subdued by the same means that had proved successful in the morning. He passed a restless night, but was rather better in the morning, and continued tolerably easy, but very weak during the whole of that day. At 5 P.M. of the day of his death, the severe pain again returned, and although every means was employed to relieve it, he sunk exhausted at midnight.

Section Calaveris.—Twelve hours after death. *Body.*—Slightly built, but well formed. *Head and Thorax.*—Not examined. *Abdomen.*—On laying open this cavity slight adhesions were found to exist between the intestinal and parietal peritoneum. The intestines, generally, presented an inflammatory blush, and in the left iliac fossa a considerable quantity of pus was found effused. Slight pressure on the surface of the intestines while they were lying *in situ*, caused the escape of a small portion of air from apparently the colon into the transverse meso-colon; but on afterwards laying open the intestines no well-marked perforations could be detected, it being questionable whether those which were present were not accidental lacerations. The whole of the colon was much diseased, large ulcers occupying its mucous membrane, and extending deep into the submucous areolar tissue; in the descending colon they became more confluent, the sigmoid flexure being completely disorganized, and the rectum in a gangrenous state. The stomach was anæmic, but presented no lesion. The liver, kidneys, and spleen, were healthy.

This was a case in which the septic influence of the malarial poison was well marked. The small steamers belonging to the Honourable East India Company's service, which were at that time attached to the squadron in China, were almost exclusively stationed in the Canton River, and fever and dysentery made sad ravages among their crews; the exposure to the heat of the sun, to which this man was subjected, was peculiarly calculated, on the slightest chill, to induce a highly inflammatory condition of the intestinal mucous membrane, and in the depraved state of his system such a condition was most likely to run on to gangrene. That the disease had attained a most virulent and intractable height appeared evident on his admission, and the shock which the nervous system had received was evidenced by the state of the pulse. Although the perforations which were found in the colon were not so defined as to

enable a satisfactory judgment to be passed upon them, I have no doubt that perforation did take place in this case—the sudden and violent nature of the pain which attacked the patient, and which was, indeed, the immediate cause of his death, as well as the extremely diseased condition of the gut, the presence of pus in the left iliac fossa, and the passage of air from the colon into the transverse meso-colon by the mere pressure of the hand upon the surface of the intestines, while they were as yet undisturbed, afford strong grounds for this assumption.

The following case is an example of a very common form of dysentery amongst old residents in and about the Canton River:—

Thomas Conning, æt. 44, blacksmith, H.M.S. Pilot, had suffered more or less for the previous twelve months from diarrhoea, occurring in severe paroxysms and of a bilious character. He had at different times been subjected to various kinds of treatment with but little effect, and ultimately, on the 10th of July 1851, he was sent down from Whampoa, where his ship then was lying, to the Naval Hospital at Hong-Kong. On admission, the following report was made:—"Much reduced in flesh, he says, and feels very weak; countenance somewhat sallow; pulse accelerated; tongue thinly furred; appetite very good at present. Called to stool about ten times in the twenty-four hours of late; evacuations fluid, whitish, slimy, occasionally scanty; stools passed with a little straining; some pain in the region of cæcum on pressure. Has had pains of shins of late; no swelling. Had an eruption over body seven or eight months ago, and after it several sores covered with scabs formed. Was treated for four or five days for chancre, a year ago."

The stools, under the influence of improved dietary measures, became diminished in number, but flatulent distention of the abdomen kept up some irritation, and nausea and vomiting became added to the other symptoms. Some measure of relief was derived from the medicines directed against these symptoms, but the looseness continued, and the patient became rapidly weaker. He was tried with a little quinine, combined with gentian, but it proved too irritating, and had to be suspended. He was then placed upon the sulphate of copper, in the form of pill, but all to no purpose; the debility became more marked, and he sunk exhausted on the morning of the 11th September.

Section Cadaveris.—Five hours after death; thermometer, 83° Fahr. *Body*.—Small, but well formed; much emaciated. *Thorax*.—The viscera in this cavity were healthy. *Abdomen*.—Stomach distended with flatus; some injection of mucous membrane posteriorly; small intestines healthy; the caput cæcum coli was deeply injected, of a dull red hue, thickened and softened; the mucous coat of the colon throughout its entire extent, as well as that of the rectum, was completely disorganized and ulcerated throughout; the submucous areolar tissue was thickened; liver smaller than natural, indurated and cirrhotic; omentum extremely attenuated; mesenteric glands

enlarged and softened; the whole of the abdominal venous system was congested; the pancreas, spleen, and kidneys were healthy; the gall-bladder was distended with bile.

Towards the close of this case, about three weeks before death, the tongue assumed a red and smooth appearance; this is a very fatal symptom in advanced dysentery, although cases do recover in which the tongue has become red, smooth, and dry.

(*To be continued.*)

ARTICLE II.—*Notice of Diphtherial Gingivitis in Lying-in Women.*

By J. MATTHEWS DUNCAN, M.D., F.R.S.E., Lecturer on Midwifery, etc., etc.

(*Read before the Medico-Chirurgical Society, 18th November 1863.*)

I CALL attention to the following cases, not on account of their gravity, for that is at least apparently slight, but on account of the interest which the affection is calculated to excite at this time when the subject of diphtheria is occupying so much professional attention. On the occasion of Dr Begbie's reading to the Medico-Chirurgical Society his paper on Diphtheria, in 1862, I mentioned two cases of diphtherial inflammation of the gums which I had then seen, both in the same individual; but now I have observed in all six cases in four women. They all occurred in ladies enjoying every advantage of the most comfortable circumstances.

Diphtherial inflammations of the genital organs of females in the various conditions of childhood, the unimpregnated and the puerperal states, have been described by various authors, and they have been observed sporadically as well as in the form of epidemics. But the affection of the gums of lying-in women, which is the subject of my remarks, has never, so far as I know, attracted special attention.

Gingival diphtherial inflammation in a very intense, dangerous, and epidemic form, is the scorbutic gangrene of M. Bretonneau of Tours, and its description by him forms an important epoch in the history of diphtheria generally. The cases which have come under my notice were alarming chiefly on account of the fear that their progress might induce aggravation of the local evils, or that the disease spreading might become serious, especially if it involved the respiratory apparatus, where the mere presence of a false membrane must be of the greatest gravity. And experience in diphtheria justifies alarm, for cases of apparently slight diphtheritic disease of the throat sometimes prove rapidly fatal in the manners alluded to. Fortunately, in none of the cases of gingival diphtheritis which I have seen, did the disease spread beyond the gums and opposed buccal mucous surfaces, so far justifying the opinion of Trousseau (*Clinique Medicale de l'Hotel-Dieu de Paris*, tom. i. p. 360), that

of all the manifestations of the Syrian evil, this has most a tendency to localize itself in the same points without reaching neighbouring parts. Neither did my cases show any intense local inflammation, gangrene, or ulceration.

They were illustrations of the disease in a mild or slight form, of short duration, and having, so far as I know, no epidemic character. The accumulation of sordes on the teeth was only slight; ulceration at the dental margins of the gums was once present to a small extent; the patches were whitish or ashy grey, and covered the whole gum from the dental margin to near the reflexion of the mucous membrane on the lip; they were sometimes friable, but generally tough enough to be removed in strips, if pulled off; no distinct red and elevated margin surrounded the patches, although redness and swelling of the gums generally was present; no bleeding took place from the gums; the buccal mucous membrane was affected in only one case; the glands about the angle of the jaw were slightly swollen and tender. In all the cases the labial aspect of both gums was affected. Besides these physical appearances, the following symptoms were present, fever generally slight, but in one case so violent as to be at first taken for a weed; tenderness of the teeth, and inability to eat solid food; salivation severe only in one case; in one case difficulty of swallowing and pain in the act. The cases all occurred in the course of the second and third weeks after fortunate confinements. In one case the disease supervened on a mammitis slowly advancing to abscess. In one case it had the effect of completely and quickly arresting the secretion of milk.

The disease lasted for seven or eight days in each case; that is, patches were still undetached on the sixth day. In two cases the disease reappeared after a few days' absence, and ran its course as in the first attack, but with less extent of exudation and less severity of symptoms.

Beyond the use of mild astringent gargles in the treatment of the cases, nothing specially demanding mention was done. Each case required special care, and a judicious use of ordinary remedies.

ARTICLE III.—*Some Account of the Cholera Epidemic of 1861, as it appeared at Vizagapatam, Madras Presidency, East Indies.* By JAMES DONALDSON, M.D., Surgeon, Madras Army.

A TERRIBLE outbreak of this great scourge spread over Hindostan in the summer of 1861. Not many parts of our Indian Empire were entirely free from its ravages; there were few of our large military stations where our troops did not suffer in a greater or less degree. One regiment that I formerly knew well, Her Majesty's 51st Light Infantry, stationed in the Bengal Presidency, was more

than decimated, lost a number of officers, and a large proportion of the women and children connected with the corps.

I happened to be senior medical officer at Vizagapatam when the epidemic broke out there. The charge had been till lately a garrison surgeoncy; but when Sir C. Trevelyan came with his shears, clipping off extra allowances here and supposed unnecessary appointments there, the garrison surgeoncy was abolished, and the charge handed over to the senior executive medical officer. This officer being appointed to act as Deputy-Inspector of Hospitals in absence of our chief, I, as senior at the adjacent station of Vizianagram, was sent for, and remained in medical charge of the garrison at Vizagapatam and Waltair from March till July. This charge included the European and native garrison hospitals in the fort, along with the superintendence of the medical stores for the Northern Division of the Presidency, and the charge of the 38th Regiment Native Infantry, and the Staff attached to the General of Division at Waltair, distant, respectively, two and four miles from the fort. The Europeans in the fort were mostly pensioners, and had light garrison duty. The only other Europeans in the station were two companies of the 105th Regiment, and a small number of Foot Artillery who were located about four miles off, in Waltair, near the "Staff Lines."

The disease first appeared in a fishing village situated near the dwellings of the European pensioners, on the seabeach within the fort, a dirty, ill-conditioned, native village, and soon lamentation and wailing were heard arising from every house. These poor natives did not avail themselves of the European skill or medicine generously placed by Government at their disposal, and they died like "rotten sheep." The plague then spread to the residents of the fort, the prisoners in the jail, and shopkeepers in the bazaars; thence to the "lines" of the 38th Regiment and camp-followers adjacent; and, finally, to the highly-favoured and well-situated barracks of the European effectives. These last were, fortunately, only slightly attacked; four men were seized, of whom three died, and then, providentially, the plague ceased amongst them as suddenly as it came. There was great mortality in the civil jail, as may be supposed; patients there were under circumstances of body and mind the most adverse to a hopeful issue. Of these two classes of patients I was not in charge, and of the history of the epidemic as it affected them I do not profess to give any account. The 38th Regiment did not suffer much; there were not many admissions into the hospital, and I had no deaths to record. It is chiefly with the epidemic as it appeared in the fort of Vizagapatam that I had to do, and here describe.

My first acquaintance with this dread disorder was in the civil jail,—the civil surgeon, being called to a distance, asked me to look to his patients for a day or two, which I did. I did not in any way interfere with the treatment laid down, and merely observed effects

as far as I could. Never before having seen anything but isolated cases of the disease, I was free from all preconceived notions on the subject of treatment. I had read of all imaginable kinds of cures, of all sorts of remedies displacing previous hopeful prescriptions, only to be in their turn displaced again by others,—and, still, no one remedy that could in anywise be trusted in the hour of danger. I had seen that the pouring in of salts into the stomach, to supply the supposed want of salines in the blood, had failed, simply from the inability of the system to make use of them, even allowing that their absorption would have contributed to the desired successful result. I had heard the vaunted “cold affusion” of some decried by sanguine experimenters, and the hot bath of others pronounced as little better than useless by so competent an authority as Morehead. I had been confidently assured by fellow army-surgeons, that the old favourite calomel-and-opium method killed at least as many as it cured, and hopelessly complicated the convalescence of those who stupidly failed either to be killed or cured in the process. I knew, also, that the rough-and-ready method, viz., “opium, *ad libitum*, brandy to intoxication, and chloroform to the nose,” was not, to say the least, “always” successful. I had a tolerably good idea of what the *pack* of the hydropathists would do in the collapsed stage of Asiatic cholera. Finally, however much I might envy the happy experience, the wonderful statistics, and the delightful confidence of the homœopaths, I felt bound to do something more, as an army-surgeon, than administer the billionth of a grain of ipecacuanha, or the decillionth of a fourth dilution of nux.

Stranded, therefore, as it were, from a sea of doubts and uncertainties, feeling no confidence in any routine method of treatment, and earnestly desirous to do all that man could do to combat the plague, relieve suffering, and save life, I anxiously considered, with the pestilence knocking at the door, if anything could be devised to rob it of its terrors, and give myself and my patients some confidence in the result of treatment *in hospital*, and some inducement to apply there, and to apply *early*. I saw men come into the jail, not long ill, become collapsed and rapidly sink; a few hours sufficed to convert the apparently healthy convict into a lifeless corpse; some were little better than a “corpse” before it was possible to convey the stricken from the place where the gang were working. There was a death-stroke as if from a quick insidious poison—sudden prostration; every faculty, every function paralyzed; the circulation suddenly arrested; the nervous system as suddenly rendered torpid; the absorbents almost powerless; the whole powers of life at the lowest ebb. What, I thought, can be the use of throwing in drachms of calomel; how is it to be turned to account by a palsied stomach; how is it to act in the two or three remaining hours in which the body is not actually quite dead? It cannot be useful, even as a sharp stirring poison, to excite the languid circulation to action, or the equally torpid nerves and absorbents to resume their

duty. Where can be the benefit of large doses of laudanum? Can it act any better in revivifying the dying frame? Must it not only deaden the already fast failing powers of nature, stupify the patient, and confuse and perplex the surgeon? How dangerous in a vast majority of cases must cold affusion be, where the circulation is already stopped in great measure, and the whole internal organization in a high state of congestion. What is the use of any internal remedy that requires, in large measure, to be absorbed and taken into the circulation when this is all but suspended?

Thus reflecting, and bent on doing all I could to rescue some of my patients from what appeared almost certain death, I came to the conclusion, that the only plan which held out a hopeful prospect, was one which should, *first*, arrest, as far as possible, the morbid process; *second*, restore as far as possible from the sudden shock; and, *third*, supply strength as far as possible to the enfeebled stomach, to take up medicine and nourishment. Cases I knew there were where all this was hopeless; cases where nothing would go down, or nothing would stay down; but I believed I had seen others where a well-directed and well-sustained stimulus would have checked the fast advancing weakness, recovered from the severe, but not necessarily permanent shock, and supported the flagging powers of nature through the terrible ordeal to be passed till the system had time to rally and take in again the pabulum necessary to enable it to fight with and successfully overcome the morbid agency of the destroyer. I made ready, therefore, the strongest diffusible stimuli, and determined to use them as soon as I had the opportunity, and as perseveringly as the nature of each case would permit. The result was beyond my expectation; and it was with the view of recording what I believe to be an unusually successful encounter with an unusually virulent form of this fatal and inscrutable disorder, trusting that many of my brethren may thus find themselves strengthened against future visitations of the scourge, that I have ventured to commit my experience to the pages of the *Edinburgh Medical Journal*.

In discussing the following cases of cholera treated in the garrison hospital, I would have it plainly understood, that only *genuine unmistakable cases* are alluded to. I was so fortunate as to be assisted by Mr Quinn, one of the most intelligent and active members of our subordinate medical service, who was on the spot night and day, who registered all the cases, and carefully separated all those that were doubtful, or attacked only with premonitory symptoms, from the sudden, quickly prostrating, and malignant cases of the true spasmodic seizure. In addition to these, numbers of patients with premonitory symptoms, threatening attacks of diarrhoea, etc., were promptly treated in the same way, and rapidly recovered. Of eighteen cases of true malignant cholera, treated in the garrison hospital during my tenure of the charge in June and beginning of July, six only died, and the remainder recovered

without any subsequent bad symptom, and with no tardy convalescence, but, on the contrary, with a speedy return to the usual state of health. Of several apparently hopeless cases in the 38th Regiment, not one died; and, amongst a number of native followers who came promptly for treatment, none suffered more than a temporary and unusually short illness; the danger once passed, and the "shock" recovered from, recovery was rapid. I would append a few cases here as the most effective and satisfactory method of portraying the nature of the malady, and the treatment employed; premising that they are copied from notes taken on the spot and at the time, chiefly by Mr Quinn, my apothecary, at the bedside of each patient, and condensed as much as is consistent with the desire to convey a correct idea of the state and treatment of each individual case.

CASE I.—Mrs Dixon, æt. 33, a woman of very irregular and intemperate habits. Admitted at 2 P.M., 11th June 1861, into European garrison hospital, with urgent attack of cholera, attended with severe cramps in the lower extremities, and rapidly slipping into that state known as the "collapsed stage." Seized this morning; pulse very feeble, almost imperceptible; skin cold and clammy, with cold perspiration; skin of face and hands shrunk and cadaverous looking; stools very frequent, vomiting likewise; the matter ejected by purging and vomiting has the usual appearance of the ejecta at this stage of the disease, being like an ill-mixed or ill-digested mass of broken rice and water of a dirty white colour, with no appearance of bile, and no admixture of fecal matter. There is urgent thirst. Little or no urine passed since attack came on; the secretion seems entirely suspended; bladder empty. The exhaustion of system is very great. R. Æther chloric, spirit. ammoniæ aromat. aa 5ss.; Mist. camph. ʒj. This draught to be taken every twenty minutes. To allay thirst, a little brandy and water occasionally, and sulphuric-acid drink, if desired. Externally, turpentine frictions; sinapisms to epigastrium and calves of legs; hot bottles or bags of sand to feet, etc.

5½ P.M.—Patient decidedly roused and strengthened by the stimulant treatment employed. Vomiting and purging less frequent, and less copious. Cramps much relieved. The pulse less feeble; the face and extremities less shrunk; and altogether there is decided improvement in the general state. Ejecta still of the same character, however, and no urine passed. To add sol. mur. morphiæ to each draught for two or three doses.

12th.—Vomiting and purging still continue; no urine voided. Circulation much stronger, and general improvement advancing. No appearance of bile in stools. Cramps have ceased. R. Mist. cretæ, ʒiij.; Tinct. catechu, ʒiij.; Æther chloric, ʒss.; Acetat. potass., gr.xvij.; Liquor ammon. acetat., ʒiij.—M. ʒss. after each motion,—a drop of creosote to be added to the first dose, and repeated if necessary.

Vesp.—Pulse rising; bowels still relaxed, and irritability of stomach continues. A small quantity of urine passed. To get a warm bath, and the following pill every three hours,—R. Hydrarg. chlorid. gr.ij.; ext. opii, gr.¼; ext. belladonnæ, gr.¼.—M.

13th.—Improved considerably. To omit opium from pill, and add ext. taraxaci, gr.ij.

Vesp.—Same as last report. Stools tinged with bile; there is still irritability of stomach, nausea, and tendency to vomiting. R. Mist. cretæ, ʒvi.; æther chloric, ʒiij.; camphor, gr.xij.; sol. mur. morph., ʒiij.; acid hydrocyanic dilut. min.xij.—M. One ounce after each loose motion or fit of vomiting. Omit other medicines.

14th.—Better. Passed a good night. Bowels moved twice. Continue draught ordered last evening.

15th.—Continues to improve. Had no stool last night. There is still some irritability of stomach. \mathcal{R} Acid nitro-muriatic dilut. min.xv.; aq. pur. \mathfrak{z} ij.; —as drink, or thrice daily. \mathcal{R} Ext. taraxaci, gr.v.; pil. hydrarg., gr.v.; ext. belladonnae, gr.¼.—M. The pill twice daily.

16th.—Doing well. Bowels moved once since last report (15th). Stool more natural in appearance. Complains of great feeling of weakness. Continue medicines; the brandy and water occasionally, as seems advisable.

17th.—Doing well. Slept well. No remains of vomiting or purging. To omit the medicines, and take \mathcal{R} Quinæ disulph., gr.ij.; acid. sulphuric dilut. min.xv.; infus. chiraeta,¹ \mathfrak{z} iss.—M. Thrice daily.

18th.—Progressing favourably.

20th.—Convalescent.

23d.—Discharged cured.

Remarks.—This was the first case of cholera which happened among the European veterans or their families, and it was rather a perplexing one. The woman, widow of one of the pensioners, was of notoriously intemperate habits, her health and strength much broken, and in her apparently dying state any remedy seemed little likely to prolong life. When the state of collapse was recovered from, great irritability of stomach and bowels remained, and the functions of the liver as well as of the kidneys seemed for the time at a standstill. Under these circumstances, not having had as yet almost any experience of the stimulant treatment, and the danger from sinking being past, I had recourse, merely as a trial, to the old favourite Indian remedy, calomel and opium, using, at the same time, however, an astringent mixture, whose efficacy in looseness and irritability of the bowels I had ample experience of. The vomiting and purging continued longer than in any other case I have had. How far this was owing to the previous habits of the patient it is difficult to say; but I believe, from much subsequent experience, that the case would have done as well or better without the mercury.

CASE II.—Boy Thompson, *æt.* 8. Admitted at 1 P.M. on the 13th June, in the extreme collapsed stage of cholera. Pulseless; skin cold and damp; eyes sunk; great restlessness; urine suppressed. Ill five hours previous to admission. Had some native quack medicine before coming to hospital. \mathcal{R} *Æther chloric*, min.x.; spirit. ammon. aromat., min.xv.; mist. camph. \mathfrak{z} ss.—M. Every twenty minutes. Brandy and water as it can be taken; turpentine frictions, etc., etc.

Vesp. 6 P.M.—Vomited and purged several times; evacuations like rice-water in appearance; pulse just perceptible; great restlessness; lower half of body warm, upper half cold. \mathcal{R} *Liquor potass. arsenitis*, min.ij., immediately, and repeat every twenty minutes, watching effects. Sinapisms to loins and spine.

6½ P.M.—Took only two doses of the arsenical solution, or at most three; was seized with cramps at 6.45 P.M., and expired in a few minutes.

Remarks.—This was an extreme and hopeless case on admission. Time, so all-important in this terrible disease, had been wasted by the friends outside, and probably much harm done by some unknown medicine (believed to have been a *worm killer*) being administered to the child, and by five hours being allowed to elapse before he was brought to the hospital for treatment. Sulphuric æther was used instead of chloric, as a proper supply of the latter had

¹ Chiretta, or chiraeta, an excellent bitter tonic of indigenous growth and extraction.

not been obtained. The medicine could scarcely be got down, and little, if any, perceptible effect was produced. Life seemed paralyzed almost as when the electric flash suddenly palsies every living fibre; and the nervous system was too completely deadened to answer to any stimulus from within or from without. The state of the surface, as noted at 6 P.M., was curious, "the lower half warm, the upper half quite cold."

CASE III.—Boy Reynar, æt. 5. Admitted at 1.45 P.M., on the 14th June, with the usual symptoms of cholera. Vomited and purged six times outside. Ill from 6 A.M. Skin cold; pulse very small and quick; no urine voided since morning. Great restlessness and thirst. No cramps. R. Mist. cret. c., æth. chlor., etc. Weak brandy and water for drink. External treatment as usual.

2 P.M.—Had a motion of the usual character. Complains much of thirst. Continue medicine.

2.30 P.M.—Cramps in stomach. Pulse small and quick.

2.45.—One stool. Repeat mixture after every evacuation.

3.45 P.M.—Voided urine for first time since seizure. To have a little weak brandy and water.

4.20 P.M.—Improving greatly; one scanty motion; continue mixture; give warm bath.

15th, 5 $\frac{3}{4}$ A.M.—Has had only one evacuation during the night. Skin natural; pulse good. To have a little wine and water instead of brandy.

16th.—Was very well yesterday all day and last night; the boy's father imprudently gave him early this morning a quantity of coffee, badly made probably, with unwholesome milk, which brought on a quick relapse; was soon after this vomited and purged several times, and is now (6 $\frac{1}{2}$ A.M.) very weak. Pulse feeble again; skin cold. To repeat mixture, with aromatic spirit of ammonia and tincture of catechu.

17th.—Did very well yesterday; only one feculent motion last night. Is very drowsy this morning, and is with difficulty roused. Conjunctivæ turgid. Omit medicine.

5 P.M.—Has passed a large quantity of urine containing white sediment. Stupor continues, and threatening of congestion of the brain. To have sinapisms to nape of neck; derivatives to extremities, etc.

18th.—Passed rather a restless night; had one feculent stool. Is becoming more lively. To take disulphate of quinine, gr.ij., in sulphuric-acid drink thrice daily. From this state he gradually improved, and was discharged cured on the 23d June.

CASE IV.—Boy Murphy, æt. 4. Admitted 6 A.M., 21st June, with the usual symptoms of cholera: purging, vomiting, etc. No cramps. Very restless. Pulse barely perceptible; skin cold and damp. To take the mixture with chloric æther and aromatic spirits of ammonia after each evacuation, or every twenty minutes. Brandy and water occasionally for drink.

Vesp. 5 o'clock.—This case has done well; the disease, though still present, has decreased, under influence of the medicines and stimulants administered; and the danger is considered as nearly passed. Has been purged several times, and has vomited several times. Stools of the usual character, no appearance of bile. Pulse small and feeble. No urine yet voided. Patient more lively, and is ready to answer, if addressed. Continue medicine.

22d.—Four motions during the night (passed in bed) of a *dark brown colour*. Doing well. Continue medicines.

23d.—Vomiting altogether ceased. There is still diarrhœa. Continue medicine, and add tinct. catechu min.xv. to each dose.

24th.—Had a better night than previously; diarrhœa checked.

25th.—No stool till twelve o'clock yesterday. Passed several during night of dark brown colour. To continue medicine, and give anodyne enema.

12 noon.—No stools since the enema. Omit medicine. To have a little wine and water.

26th.—After another enema last night; passed eight round worms. *R. Olei ricini*, 3j.; terebinth, 3ss.; aquæ cinnamomi, 3ss.—*M.* To be taken immediately.

Vesp.—Had five stools after the above medicine was taken; passed twelve more round worms. From this time he gradually, but quickly improved, and was discharged cured on the 29th June.

Remarks.—The chief features noticeable in this case are,—first, the gradual improvement under the stimulant treatment employed, so that the pulse from being “barely perceptible” in the morning, is small and feeble in the evening; and the motions, on morning of 22d, from being of the usual choleraic character, were “dark, brown, and feculent.” Second, that the case had been complicated with worms in the intestines, which, doubtless, in such an unusual disturbance of the digestive system, caused considerable irritation, and in the extreme agitation of the bowels were thrown off. A good hint thus supplied was at once taken, vermicides were administered, and the whole nest of the parasites destroyed, to the great comfort and well-being of the little patient.

CASE V.—Mrs Finnehy, æt. 20. Admitted on the 22d June at 6.45 p.m., with all the usual symptoms of cholera: eyes sunk, skin cold, great thirst, restlessness, etc. Took some medicine before admission (a good medicine for diarrhoea in India, named “Omum,”) without benefit. Ordered the chalk mixture, with chloric æther, aromatic spirit of ammonia, tinct. catechu, hydrocyanic acid, and sol. muriat. morph. The external applications, as in all the bad cases; and a little brandy and water as drink.

23d, 5½ A.M.—Cramps ceased within two hours after first administration of the medicine. Two stools of the true cholera character; vomited twice. Patient is much better on the whole, but very weak. Continue medicine, and brandy and water.

24th.—Has had only one stool since yesterday afternoon; the evacuation has now appearance of bile. Has vomited twice.

2 P.M.—One stool since morning, of nearly natural appearance. To omit the stimulant medicine, and (there being evidence of biliary and intestinal irritation) to take following pill every three hours:—*R. Pil. hydrargyri*, gr.ij.; ext. taraxaci, gr.iv.; ext. belladonnæ, gr.¼.—*M.*

25th.—No motion. Vomited once. Is much better in every respect, but is alarmed in consequence of another “cholera patient” being admitted into same ward, and requests that she may be allowed to go to her own house. This patient vomited a large round worm on the morning of the 26th, and had no further ailment.

Remarks.—It is worthy of remark how often the attacks of illness in this epidemic were associated with the presence of worms, and their discharge from the bowels or by the mouth. Where these parasites are so common as they are in almost every Indian station, it would be premature to try to connect their existence with the predisposition which seems to exist in certain classes and persons to cholera, and this would require extensive observation; but it may easily be imagined that their presence adds very considerably to that extreme irritative sensitiveness so common in the course of the disease, and keeps up the tendency to sickness and diarrhoea after the first severe symptoms are checked; and their expulsion at such times is doubtless due to the violent intestinal movements in some cases, and the copious evacuations in others. Certain it is that vermicides act quickly and effectually in expelling

the pests under these circumstances, when their presence is discovered or suspected, and a proper remedy administered.

CASE VI.—Jane Quinn, æt. 9. Admitted 24th June, at 10.15 A.M., with all the worst symptoms of cholera. Pulse imperceptible. *No cramps*. Skin cold. Vomiting on admission. To take the mixture after each evacuation; brandy and water occasionally; external applications as usual.

10.35.—A very copious evacuation, rice water in appearance. Continue medicine.

10.55.—Very restless; no perceptible pulse.

11.15 A.M.—Another very copious evacuation of same character. Skin cold and damp. Continue medicine and brandy.

2 P.M.—No better; is sinking. Electro-galvanism was now applied, and continued for about an hour with effect of prolonging life. Expired before 3 P.M.

Remarks.—This was one of the quickly fatal cases, running its course uninfluenced by treatment. An awfully sudden instance of the terrible power of this king of terrors. A fine healthy-looking girl is playing about at seven o'clock after her early breakfast; is seized as in a moment; after a short time is carried to hospital, gets rapidly worse in spite of all that can be done, is dead before her dinner time, and is buried before sunset! Lost to her parents and companions, and out of sight in less than one short day, as if she had never existed! As in many of the fatal cases there were "no cramps" after her admission to hospital. These may have existed at the outset of the disease, but in many of the worst cases in this epidemic, when the patient seemed struck down as by some sudden blow, there were no cramps, no pain or suffering of any kind, an apparently complete insensibility to all impressions, external and internal; the body still living, but every faculty, every function, to all intents and purposes, defunct. Galvanism was tried by myself, carefully and perseveringly, with the hope that if the nervous system could be so stimulated as to enable the stomach to receive impressions, strong stimulants might rouse, and treatment still avail. To a certain degree it was successful, the little patient was roused, seemed conscious, the pulse was quickened, inspiration increased and strengthened; but only for a short space, perhaps for half an hour. The collapse re-asserted its supremacy over the artificial force thus temporarily supplied, and life ebbed so fast that it would have been but cruelty to continue the application.

CASE VII.—Mrs M'Grath, æt. 32. Admitted 25th June, at 5 A.M., complaining of having been purged frequently for some hours past. No vomiting. No cramps. No urine voided for some hours. Pulse small; skin warm. Thirst great. Eyes sunk. To take the chloric æther and ammonia mixture after each loose motion. Brandy and water for drink. Hip-bath (warm).

6 A.M.—Three motions since admission, the first consisting of "slime" only, the last two bilious and watery. Voice low. Continue medicine.

8.40 A.M.—One watery motion tinged with bile. Continue medicine.

10 A.M.—A motion of the true choleraic character. No urine has been passed. Pulse very small. Voice very feeble.

11.30.—No evacuation since last report. Patient very low. Pulse barely perceptible. No urine. To continue medicine.

Noon.—Vomited for the first time. To add six drops of acid. hydrocyanic dilut. to next dose of mixture.

1.15.—One large motion. Has passed a small quantity of urine for first time since seizure. To add tinct. catechu, 3ij., to each dose of medicine.

26th, 5 A.M.—Three motions during night. Slept pretty well. No vomiting since the hydrocyanic acid was taken. Improving.

27th.—Only one motion during the night. To continue medicine.

28th.—Much improved. One motion only since last report, *colourless*. Omit mixture. To take.—*R.* Ext. taraxaci, gr. iv.; Ext. gentian, gr. ij.—*M.*, thrice daily, with nitro-muriatic acid drink.

Vesp.—Says she cannot sleep. *R.* Sol. mur. morph., ʒj.

29th.—Better. No bad symptom. Continue pill.

Vesp.—Repet. sol. mur. morph.

30th.—Improving in all respects.

1st July.—Says she feels quite well, and is allowed to go home.

Remarks.—This case differs only from some of the others in having been brought to hospital in better time. The disease was not fairly developed, and was therefore more fairly combated than most of the bad cases, both of those that died and of those that recovered. Another hour in applying for treatment might have made all the difference; for it was evidently one that would have proved a bad case, in a nervous, weakly woman. It will be seen how well the hydrocyanic acid acted in checking the vomiting when that symptom did show itself. It should be mentioned that many of these patients, especially the women, were allowed to leave the hospital, at their own request, before they would have been discharged in the regular course, and before they were strong, or at all recruited as they ought to have been. Busy in their own houses, with children to look after, they fretted to be back to them, and it was thought better to let them go with some advice and medicine in case of need. None of them suffered from this indulgence.

CASE VIII.—Boy Carey, *æt.* 2.—Admitted on 27th June at 11.30 A.M., with cholera. Ill some hours, and was purged and vomited three times outside. Has all the usual symptoms. To take the mixture in proportionate quantity, and to have a little wine and water occasionally.

Vesp.—Vomited and purged several times during day. Evacuations watery and becoming coloured. Pulse of greater volume. Child not so restless. There is still great thirst. Omit wine. Continue medicine.

28th.—Has passed seven stools of natural colour. Child is in every respect better. To continue mixture.

29th.—Improving. Passed six stools coloured by the catechu. Passed two round worms. Continue medicine.

30th.—No evacuations since last report. Child is very weak. To have wine and good nourishment.

Vesp.—Very weak; sleeps for the most part. Has had one stool. Omit chalk mixture and catechu. To take the chloric ether and aromatic spirit of ammonia only.

6.15 P.M.—Very low. Pulse small and thready. Child is in a state of stupor. To continue medicine; sinapisms to calves of legs, &c.

8 P.M.—One watery stool. Passed another worm. Continue medicine.

1st July.—In much the same state. To continue medicine, and wine and water.

2d.—Had four motions last night, and passed three worms. Improving. After this, the child had a turpentine enema, and took a mixture containing liquor ammoniæ, and oil of turpentine. Passed a number more of round worms, and thereafter gradually improved, and was soon discharged quite well.

CASE IX.—Sergeant Drew, *æt.* 42 (in India eighteen years). Habits intemperate. Admitted 24th June, at 12.30 A.M., in the collapsed stage of cholera. Is a man of broken-down constitution and syphilitic taint. Ill for some hours outside, and was frequently vomited and purged. Pulse imperceptible at

wrist. Skin cold and damp. Eyes sunk. Voice husky. Is very restless. Cramps in abdomen and lower extremities. Thirst very great. Fingers and toes quite shrunk and blue. The treatment prescribed to be perseveringly employed, internally and externally.

1.30 A.M.—Vomited twice and was purged once within the first hour. Continue treatment.

2 A.M.—Retained the third dose of the medicine. No cramps from this hour, and patient is comfortable and quiet.

6 A.M.—Has had no more purging or vomiting, but continues in the same low state. No pulse. Skin quite cold, notwithstanding all the warm and stimulating applications. Gradually sank, and died at 9.40 forenoon.

Remarks.—This case shows the rapid course (nine hours) of cholera in an imtemperate, enervated man. The characteristic symptoms were checked successfully, the disease apparently gone; but the strength was gone also,—there was no restorative power, no reaction from the fatal “shock,” and the patient rapidly sank from pure exhaustion.

I had intended to enter here an interesting case, *in extenso*, showing the struggle for life in a delicate woman, pregnant with a three-months’ fœtus; but it occupies so many pages, and it would be so difficult to abbreviate it, that I have omitted it, afraid of making this paper unreadably long. She was treated on the same principles as above exemplified, carefully watched, and the medicine altered as the symptoms varied. The following is an extract from the remarks which I appended to the history of her illness:—“A curious and complicated case, and excited much interest. The sudden attack of cholera, which so nearly proved fatal, and kept the patient for so long a time at the very door of death, evidently destroyed the life of the fœtus at the outset; yet there was not strength to abort, and the danger to the mother was thus proportionately increased. When a certain measure of strength returned, and abortion took place, the patient did well, and was in a fair way of recovery to perfect health at the date of my return to Vizianagram (7th July)—a surprise to all who saw her.”

CASE X.—Boy Sullivan, æt. 7. Admitted 4th July, at 8.40 A.M., with all the ordinary symptoms of cholera, but *no cramps*. Was taken ill at 6 A.M. Pulseless. Skin cold. Death pictured in the countenance. Was purged and vomited frequently before admission. Treatment as above described.

9 A.M.—Vomited and purged once—“the usual cholera stool.” Is very restless. Great thirst.

10.20.—Very low. To take liquor ammoniæ, min. ij., every twenty minutes instead of mixture.”

11.15.—One scanty motion passed in bed. No pulse perceptible at wrist. Eyes sunk. No urine passed. Continue liquor ammoniæ.

Noon.—No more vomiting or purging. Sinking.

1 P.M.—No change.

1.35.—Expired.

Remarks.—Finding that the treatment generally successful failed in this case (whether owing to being too long delayed or not), the remedy so useful in the almost comatose state often following “snake bite” was tried, in the faint hope that here too it might prove efficacious, but in vain; the liquor ammoniæ, so potent in overcoming the evil effects in the one case, had no power over the more subtle poison of this most deadly malady.

CASE XI.—Mrs Bowen, æt. 33. Admitted on 3d July, at 8 P.M., with usual characteristic symptoms of cholera. Eyes sunk. Treatment as above.

4th, A.M.—Purged and vomited several times during the night. Feels very weak. Pulse small. Skin still cold. Continue medicine, and brandy and water.

Vesp.—Much improved; two motions only during day, with appearance of bile returning. Continue idem.

5th.—Had several bilious stools last night. No return of vomiting. Feels well. Tinct. of catechu to be added to medicine.

Vesp.—Passed two stools. Voided urine for first time since admission. Is doing very well.

6th.—Feels well enough to go to her own house; and, wishing to get home, is discharged accordingly.

CASE XII.—Boy Wheelan, æt. 5. Admitted 5th July, 8:40 A.M., with cholera: the usual characteristic symptoms present. Was seized at 6 A.M., and was purged and vomited several times before admission. Pulse is small and feeble. Skin cold and damp. Great restlessness and thirst. Eyes sunk, etc. To take the mixture, with æther and ammonia; and the external treatment to be carefully carried out.

Noon.—Vomited once and purged once since last report; in other respects the same. No urine. To continue treatment, and employ hip-bath, and sinapism to loins. Wine and water instead of brandy.

Vesp.—One motion, watery; passed a round worm. Pulse still small, but there is returning heat of surface; and other signs of improvement are evident. A little urine passed. Continue medicines.

6th.—Doing well, but weak. Vomiting ceased. Has had one motion, and passed another worm. To add tinct. catechu to mixture, and omit the hydrocyanic acid, and sol. mur. morph.

Vesp.—Doing well. Passed four more worms. To have some turpentine and castor-oil to-morrow morning.

7th.—Continues to improve.

This short report is only entered to show that the presence of worms, though considered important, was not regarded while the weightier symptoms lasted. On these being overcome, the vermicide was administered, and the child, being relieved of the parasites, made a good recovery.

CASE XIII.—Mr H. Jones, æt. 33, was seized at 2 A.M. on the 25th June, with cholera. Visited at 7.45 A.M. Report is,—“Has been purged several times. No cramps nor vomiting. Pulse small and thready. Skin cold and damp. Eyes sunk. Extremities shrunk. Evacuations watery. Has a great thirst, etc.” To take the mixture with chloric æther, ammonia, and catechu. Brandy and water, p. r. n. External applications as usual.”

11 A.M.—Vomited several times. Pulse barely perceptible. No urine passed. To continue medicine, adding two minims of the hydrocyanic acid.

4 P.M.—Purged four times,—the stools characteristic of cholera. Has vomited also several times. Is rather better; there is some reaction, and skin is warm. To continue the mixture, increasing the hydrocyanic acid to five minims. To have a hip-bath, as warm as he likes it.

26th.—Has vomited three times since last report. No evacuation from bowels. Urine passed for first time this morning. To omit mixture with chalk and catechu, and substitute small doses of brandy and ammonia occasionally.”

27th.—Doing well, but voided no urine since yesterday. Sinapism to loins; repeat hip-bath.

Vesp.—Passed large quantity of urine; feels well. Continue last ordered medicine.

28th.—Passed a good night. No return of vomiting or purging. Ordered

wine and nourishing diet. From this date the patient gradually gained flesh and strength; and he is now (6th July) quite well.

The above short summary is given as illustrative of simple uncomplicated cholera occurring in a healthy strong man, in good circumstances (residing in the fort); and of the treatment above detailed getting fair play, being commenced before the stage of collapse arrived, and before the dangerous "vomit" had set in. The result of the treatment under these circumstances was all that could be desired.

Any one who has perused this paper so far, and looked at the above cases, must have made himself acquainted with the general plan of treatment adopted, and will have noticed the results. These cannot be said to have arisen from accident, or from carelessly-collated instances. It has been said that, if left wholly to themselves, one half of cholera cases in an ordinary epidemic will recover, or be cured by nature's unaided powers. This, I presume, has been stated because the homœopathsists boast that they cure one half of their patients. But, allowing such statement to be correct, this would not account for so large a proportion as twelve out of eighteen chosen bad cases recovering! I repeat that these were selected cases of the *true, decided, fully-developed* disease, such only being recorded as "*Cholera*." They were treated in the public garrison hospital of Vizagapatam, which was regularly visited (at this time almost daily) by the Deputy-Inspector of Hospitals of the division.

To what, then, was the recovery of so large a proportion owing? Was it to calomel? I answer decidedly, No. Calomel was only given in one case, and then only after the urgent symptoms had been subdued. This powerful medicine is here, I believe, of little value; worse than useless in the first and dangerous stages, as doing no good, and preventing the administration of better remedies; and, to say the least, of very questionable utility in the later or convalescent stages. I subscribe to Dr Morehead's opinion, that calomel is not necessary to the re-establishment of the function of the liver. We know, indeed, that men whose opinions are deserving of all respect have done their best to convince us that calomel has no direct action on the liver at all, and that the green stools which follow its journey through the bowels are owing to a chemical compound formed in its passage, and not at all to the presence of bile, pure or otherwise. But, allowing that calomel—an excellent alterative when judiciously and timeously administered—does excite the action of the liver, in common with that of other organs, when its influence has fairly begun to be exerted on the system at large, such an effect is not in this instance worth obtaining at the risk entailed; for, the "shock" overcome, and the natural powers somewhat restored, the functions of the liver and kidneys resume their usual office with little or no help. In one of two ways we may suppose that these functions are suspended,

First, The organs are palsied, like all the other active parts of the body, and their functions are, *pro tempore*, in abeyance; their functions are not arrested more than those of other organs, but they are more conspicuous, as it were, by their absence,—the others not being immediately necessary to life and health. *Second*, These organs are in very many cases highly congested, and, as we well know, physiologically and pathologically, cannot under such circumstances perform aright the functions natural to them. In either case, then, when the state of paralysis is overcome, or the congestion relieved, the function is restored, and, with returning health and strength, resumes its normal state and quantity. I was already fully inclined to believe, with Dr Morehead, that calomel was, at the least, “unnecessary;” and my experience in this epidemic fully confirms the belief: the functions referred to were fully restored in all the cases I afterwards treated, without any aid from calomel.

Was it then opium which produced the desired effect? No. Opium was also carefully avoided, and only given in the form of solution of muriate of morphia, when the alvine dejections were unusually great, or when there was unusual restlessness and inability to sleep, after the collapsed stage was fairly passed. It could not be the hydrocyanic acid, which was only added when vomiting was more than usually severe. There remained but “chloric æther,” “aromatic spirit of ammonia,” and “tincture of catechu,” commingled in the vehicle found most agreeable and convenient for their speedy and successful administration. The catechu could only act as a good astringent, and was only used as such. To the other two belonged the virtue, as I believe, of restraining this deadly malady. Well-prepared chloric æther is a potent diffusible stimulant, with an action almost instantaneous. In certain forms of diarrhoea its effect, when swallowed, is almost magical,—creating a grateful, strengthening glow in the inner man, arresting colicky pains, and diffusing a feeling of comfort not to be understood but by those who have felt its beneficial effects. Any one may, however, test this by his own personal experience. The aromatic spirit of ammonia is more generally known and appreciated, and on its virtues I need not dilate. Their combination I believe to be most powerful and most beneficial in the complaint I have been treating of. The plan adopted, and fully understood and acted upon by Mr Quinn in my absence,¹ was as follows:—A bottle

¹ It should here be mentioned that I was obliged to live in Waltair, nearly four English miles from the fort, so that it was sometimes a couple of hours or more before I could drive down to see a patient seized after my morning visit, or before my visit in the afternoon. It was essential, therefore, to the well-being of those attacked by cholera in my absence, that some one should be on the spot who thoroughly understood, and could be trusted fairly to carry out my plan; and I was most fortunate in having as my assistant Mr Quinn, one of the most intelligent and active members of our subordinate medical service, whom I could thoroughly trust to carry out my directions, and who

stood ready, containing these two ingredients, in a suitable proportion of chalk mixture; and, on admission of each patient seized with cholera, or complaining of the premonitory symptoms, a dose was administered pending discovery of the exact nature of each case. If vomiting proved the prevailing feature, the hydrocyanic acid was added, till that was subdued. Were purging the most urgent symptom, solution of muriate of morphia was combined in such dose, and as often as seemed desirable. The tincture of catechu was superadded in every case where purging at all prevailed. The vomiting or purging checked, as the case might be (and this generally happened after a very few doses of the mixture), the first bottle was returned to, and the "chloric æther" and "aromatic spirit of ammonia" were the weapons with which the disease was chiefly combated. I need only mention the other remedies tried in this epidemic. I remembered seeing arsenic highly praised, and I tried it, but without success. I cannot say, however, that I gave it an extended or fair trial. Successful otherwise, I was not inclined to make what might have proved *rash* experiments. I may say the same of "veratria," which also proved powerless in my hands. Electricity did wonders in resuscitating patients apparently defunct, but did not restore sufficiently to help recovery. The brandy given in small doses occasionally, with a moderate admixture of water, appeared to me a most useful adjunct, and was grateful as a drink to most of the patients. Some would not take it; with others it disagreed. In such instances the "Imperial drink" was relished, and generally remained on the stomach, except where vomiting was more than usually violent. Sulphuric acid drink, too (℞ Acid. sulph. dilut. min. x.; Aq. pur. ℥j. ad ℥ij.; Sacchari, q. s. —M.), sometimes relieved the burning thirst, was generally liked and retained, and may be mentioned as being even trusted to as a "remedy" in India by some. Quinine is excellent as a tonic in convalescence, and greatly aids the recovery of the strength after the exhausting process sustained by the constitution.¹

did excellent service during this epidemic. I was thus fortunate, and so managed to perform the duties required, by almost unremitting work from 4 A.M. till 8 P.M. But it was an ill-saved economy, abolishing the garrison surgeoncy, and throwing such overwhelming work on one man's shoulders. No one could do it long in a cholera season.

¹ After this epidemic had passed over, I saw recommended a plan of treatment by a medical brother in Bengal (I have unfortunately forgotten his name), which is well worth remembering. This gentleman believes, if I understood him aright, that in the first "shock" and general prostration, the blood is all but stagnated, and the heart quite unequal to drive it on; and he recommends that the lancet should be used at this juncture, and a small quantity of the dark "grumous" blood drawn from the vein opened. The blood may not flow, and then, I think, he looks on the case as hopeless; if it flow freely, he does not take much, but just enough to relieve the circulation, the heart is able to act again, and the patient revives. This sounds well in theory (I do not know how it succeeded in actual practice), and I should be well inclined to try it in suitable cases. I believe that removing this difficulty in nature's way would

I have not alluded to "external means," nor, indeed, need I do so here. I am not professing to write a treatise on cholera; all that has been done, or may be done, in the way of treatment, any more than I am describing its nature, or explaining its causes,—the sinapisms over the stomach and spine, the turpentine stupes, the sandbags and hot bottles, the dry and moist frictions, etc., etc., are all useful in their place; we took advantage of them all; but they are not to be trusted to to the exclusion, or careless administration, of appropriate *internal* treatment; they are useful adjuncts, I think, nothing more.

On leaving Vizagapatam, I was resident for a short time at Bimlipatam, sixteen miles farther up the Coromandel coast (or north of Waltair). There, I had many more cases of cholera to treat. We were surrounded by the native village and bazaar; and numbers had perished within a stone's throw of the friend's house in which we were located. I pursued the same plan of treatment at Bimlipatam, and with even greater success. Of all the cases noted, including my own and that of my wife and child, all were cured but one; that one was a native female whom I did not see. Some of the higher caste natives will not allow their women to be seen by Europeans, even in cases of illness; and whether this woman was past hope when the remedy reached her, or whether it was not properly or regularly given, I could not find out. One cannot trust to the statements of the natives of India on this point, and this fatal case did not militate in my mind against the general successful issue amongst the natives; and, I may add, that the stimulant plan acted more powerfully, and more successfully, even, than with the Europeans whose cases I have described; probably, for the reason, that they live more plainly, and are more easily and quickly affected by such powerful agents. From Bimlipatam we returned to my station and regiment (the 46th) at Vizianagram. The epidemic there was comparatively mild, and there had not been, by any means, such a per-centage of sickness as at the neighbouring stations. I had four well-marked cases admitted into my hospital after my return; these all did well. A number of other cases were treated amongst the camp-followers, native servants, etc., and all successfully. I had no fatal case after my return to Vizianagram.

be a powerful help to the stimulant method; but it would probably only be beneficial in cases of *general venous congestion*, as likely to occur in full-blooded, young and strong Europeans. I do not think,—and did not think at the time I noticed this plan recommended,—that any of my cases would have benefited by blood-letting. There was no general venous congestion in any of them. Congestion of many or all of the internal organs there evidently was; and, could a certain amount of blood have been withdrawn from the organ or organs most congested, the result, I believe, in certain of the cases would have been favourable to their after progress; but *general* bleeding would, I am confident, have utterly failed,—and, even if possible, would have had no good effect on the ultimate issue.

In conclusion, I would beg of my professional brethren to remark, that I am not advocating any "nostrum" or line of treatment as "infallible" in curing this terrible scourge of our kind, especially of our European armies in our Indian possessions; far from it. I would speak with all diffidence on a subject, and in reference to a disease which has puzzled the brains and baffled the arts of the wisest and best in our truth-searching profession. I write merely to call attention to a plan of treatment which I thought and hoped would, under God, prove successful; which did prove successful in a wonderful, I think I may say an *unusual*, degree, and which I feel firmly persuaded will prove successful again, if tested fairly, fully, and, in each case, *without delay*. If I should be so fortunate as to persuade any of my medical brethren to give a fair, unprejudiced trial to the plan here advocated, and have the satisfaction to learn hereafter that they have done so with results equal, or even approximating, to those here recorded, I shall feel myself well rewarded for compelling myself into the publication of an article undertaken with considerable unwillingness, and amid many difficulties.

AUGUST, 1863.

ARTICLE IV.—*On the Physiological Action of the Uterus in Parturition.* By ARTHUR SCOTT DONKIN, M.D. Edin., M.D. Durham, L.R.C.S. Edin.; Lecturer on Medical Jurisprudence to the University of Durham, Neville Hall College, Newcastle-on-Tyne.

(Read before the Physiological Section of the British Association at Newcastle, 31st August 1863.)

IN the present contribution it is not my intention to endeavour to determine the exciting cause of parturition, nor to trace the influence of the different centres of the nervous system on the uterus during that process, but simply to consider the question, To what extent does the uterus contract during labour? in other words, *Does the entire organ contract during a labour pain?*

Before advancing my own views on this subject, it will be necessary briefly to review the various hypotheses which have from time to time been advanced by other observers.

Wigand, first of all, advanced the hypothesis that the contractions of the uterus in parturition are essentially peristaltic, commencing in the cervix, and gradually advancing into the body and fundus of the organ, and then pursuing a retrograde course to the point where they originated.

This theory of Wigand has been adopted by Muller,¹ Michaelis,

¹ Physiol. Trans. by Dr Bailly, vol. ii. p. 1652.

Rigby,¹ Churchill,² Tyler Smith,³ Farre,⁴ and others; and the data on which it is supposed to be established consist of the following phenomena witnessed in the early stage of parturition, before rupture of the fetal envelopes, and the discharge of the amniotic fluid.

1. So soon as a uterine contraction at this period begins to develop itself, the cervix is felt to become tense. 2. The head of the fœtus, or presenting part, suspended in the surrounding fluid, recedes from the orifice of the uterus, while the orifice itself becomes filled with a bladder-like protrusion of the amnion filled with fluid. 3. In the course of a few seconds later the fœtal head is felt to descend again, or to be forcibly protruded against the os uteri. Now, it is argued that if the uterine contractions, which expel the fœtus, had in such instances commenced in the fundus of the uterus, and travelled downwards to the cervix, the head of the fœtus, instead of receding at first from the uterine orifice, would be pushed forcibly against it.

Dr Murphy,⁵ so far as I am aware, was the first to dispute the accuracy of Wigand's conclusions based on the phenomena just referred to. "In Wigand's explanation," says Dr Murphy, "the influence of fluid pressure seems to be altogether forgotten. The immediate effect of contraction commencing at the fundus would be to compress the liquor amnii, which of necessity forces its way on to the mouth of the uterus. The fluid in this position reacts against the head with a power equal to that which compresses it, and therefore pushes the head up until the increasing contraction of the fundus forces it down again, so that the phenomena quoted are quite consistent with the statement that uterine contraction begins at the fundus; in fact, it could not be otherwise so long as the waters remain in the uterus. But if the contraction commenced from below, the fluid must be driven upwards, and that portion between the os uteri and the head pressed aside, at least in the first instance, so that the head might be easily felt when the pain commences, although not so afterwards."

The tension of the cervix constituting, according to Wigand and his followers, the earliest manifestation of uterine contraction, is considered, and very justly so, by Dr Murphy, to be merely passive, and the result of the mechanical pressure of the propelled fluid against the inner surface of the lower segment of the uterus. Dr Murphy considers uterine contraction to be peristaltic, and, in opposition to the theory of Wigand, maintains that it commences in the fundus, and pursues a course towards the orifice of the uterus.

Braun⁶ also maintains that the contractions of the uterus do not

¹ *System of Midwifery*, p. 99.

² *Midwifery*. Third Ed., p. 177.

³ *Manual of Obstetrics*, p. 201.

⁴ *On the Uterus*. Todd's *Cyclop. of Anat. and Physiol.*, p. 673.

⁵ *Lect. on Midwifery*. Second Ed., p. 180.

⁶ *Lehrbuch der Geburtshilfe*, p. 150. Wien, 1857.

begin in the cervix, but at the orifices of the Fallopian tubes, thence expanding equally over the entire circumference of the organ, its centripetal action being thus developed, which, as in other hollow muscular organs, is in the direction of its outlet.

Scanzoni¹ offers the same objections to Wigand's theory as those advanced by Dr Murphy, and urges that the simultaneous protrusion of the bag of membranes at the os uteri, and the ascent of the head at the invasion of a labour pain, are incompatible with uterine contraction beginning at the cervix. This distinguished obstetrician urges that a normal uterine contraction commences neither in the fundus nor lower segment of the uterus, but is equally spread over the entire organ.

The most recent contribution on this subject, with which I am acquainted, is that of Dr Christie of Aberdeen.² This observer "doubts greatly if the action of the uterus in labour is of the kind that can, strictly speaking, be called peristaltic. The contraction, it is true, begins in the fundus, and then extends downwards over the body and cervix of the organ; but one point is not relaxed as the contiguous one begins to contract. From the first to the last moment of contraction, the fundus is active." "For many years past," says Dr Christie, "I have rarely omitted to make observations in regard to the matter, and in no instance have I ever been able to detect anything like peristaltic motion."

Dr Christie rejects Dr Murphy's speculative interpretation of the phenomenon, on which Wigand chiefly based his theory of uterine contraction, namely, the retraction of the head of the fœtus at the commencement of a labour pain, and advances the proposition that this is simply an apparent, not a real, occurrence. "It is," he remarks, "wholly due to the accumulation of fluid between it and the membranes; and the matter has been so often investigated and reinvestigated in the course of my own practice, that I feel no misgivings in insisting on that just stated as the true explanation of it."

It is obvious, then, that notwithstanding the opposite views entertained by these authorities concerning the point of origin and direction followed by a uterine contraction, they are unanimous on one point, namely, *that in each contraction the entire organ participates, the cervix included.*

The observations just quoted from the opponents of Wigand, are undoubtedly sufficient to demonstrate that his hypothesis of uterine action is untenable, and founded on a misinterpretation of certain phenomena. In the following observations I will not attempt to decide whether each parturient contraction begins simultaneously throughout the entire uterus, according to Scanzoni; or whether, according to Murphy, Braun, Christie, and others, it

¹ Lehrbuch der Geburtshilfe, p. 171. Wien, 1853.

² Edin. Med. Jour., vol. iv. p. 481.

commences in the fundus, and then travels downwards to the cervix. This is a question irrelevant to the object of the present inquiry, which is to determine whether the *entire uterus is, or is not*, thrown into a state of contraction during a labour pain. This is a question which, as I shall afterwards attempt to show, has a most important relation to the pathology of *placenta prævia*, and is, therefore, deserving of the most careful consideration.

The following propositions will best express what I am about to advance on the subject:—

Proposition I.—During natural parturition, the seat of contraction is the fundus and body of the uterus; contraction ceases entirely in the lower segment of the uterine body.

Proposition II.—The cervix and a short zone of the body of the uterus, continuous with and adjoining it, do not contract with each labour pain, but, instead, undergo passive mechanical expansion, by which the canal of the cervix is dilated, so as to permit the escape of the *fœtus* and its appendages.

Physiologically, then, during parturition, a line separates the lower or cervical zone from the lateral and fundal regions above. *Below* this line there is passive mechanical expansion; *above* it, active rhythmic contraction.

Immediately after the gravid uterus has expelled its contents, the cervix becomes passively contracted, like the so-called sphincter of the bladder, its contraction being induced by the removal of the distending force.

Now, these propositions I shall endeavour to establish by the following data:—

1. *Anatomical and Histological.*—There is no principle better established in physiology, than that an organ, in order to perform a special function, requires to be endowed with a special organization; and we find the cervix uteri, on careful investigation, to be no exception to this rule; for when compared with the body of the organ—(its lateral and fundal regions)—it presents in its anatomical and histological conformation differences so characteristic and unmistakable as to be considered by some almost a distinct organ. These differences are as follows:—

In the uterine body (fundus included) the middle coat, consisting chiefly of involuntary muscular fibre, united by a moderate quantity of connective tissue, is so closely united *externally* to the peritoneal coat, that they cannot be separated in many parts except after prolonged maceration;¹ while the mucous membrane investing its inner surface is everywhere smooth, and covered with the orifices of its utricular glands or follicles.²

¹ Vide Farre on the Uterus, Cyclop. of Anat. and Physiol., p. 631.

² It may be interesting to observe, in passing, that these glands, or their orifices, at least, were first discovered by Marcellus Malpighi, two centuries ago:—"Uterus interiùs membranâ quâdam ambitur, quæ minùs et innumera habet officia glutinosum, mucosumque fundentia humorem, quo uterus ipse et

The middle coat of the cervix, on the other hand, is not invested with peritoneum, except only a portion of its posterior surface, and even this is separated to a considerable extent from the peritoneal investment by a mass of loose connective tissue; and a similar layer of this tissue also intervenes between the cervix anteriorly and the urinary bladder with which it is in anatomical relation. M. Jobert¹ was the first, if I mistake not, to direct special attention to this important relation between the uterus and peritoneum. This accurate anatomist observes, that it may be established as a law that the peritoneum is intimately connected with the body of the uterus by muscular fibre, both in woman and the lower animals, —never by areolar or yellow elastic tissue; while, through the entire mammalian series, lax areolar or connective tissue is the means of union between the peritoneum and the neck of the uterus, the vagina, and large ligaments.

In the next place, the middle coat of the cervix differs remarkably from that of the uterine body. *First*, in the absence of a superficial layer of longitudinal muscular fibres; *secondly*, in the much more circular arrangement of its muscular fibres, which, according to Jobert, “constitute semicircles and decussate without mingling, the semicircular arrangement being more evident in women who have had children than in others;” *thirdly*, in the *great preponderance of elastic fibrous tissue over the muscular element*; this fibrous tissue consists of long detached bundles of fibres, stronger and tougher than the connective tissue which unites the constituents of the muscular and mucous coats of the body of the uterus.² The middle coat of the cervix, then, *has much more of a fibrous than of a muscular character.*

The mucous membrane of the cervix differs remarkably from the smooth glandular lining membrane of the body of the uterus. To borrow the description of Dr Farre, it is everywhere folded into *plicæ*, “which constitute a series of primary folds, from which others of a secondary order are produced. These emerge from either side of the lateral plicæ, and, crossing the furrows between them, subdivide, divide again and again, until the whole surface presents that cribriform aspect which can be just discerned by the naked eye, but cannot be accurately explained without the aid of the microscope.” The depressions between the smallest or ultimate series of plicæ are occupied by numberless mucous crypts, which appear to furnish the peculiar mucous secretion of the cervical canal. But I may observe that such a complex and intricate

vagina perpetuò madent. Quare compresso utero prosilit hujusmodi mucosus ichor. Patent autem hæc excretoriorum vasorum ora, si diu interior uteri membrana aqua maceretur, et in ovibus præcipuè obvia sunt; . . . an verò his minimæ appendantur glandulæ, licèt sensus distinctè non attingat, ratio tamen ex perpetua naturæ operandi norma probabiliter eas suadet.”—*Opera Omnia*, tom. ii. p. 220. *Lugdunæ Batav.*, 1687.

¹ On the Structure of the Uterus. *Lancet*, 1844, vol. i. p. 370.

² *Vide* Farre on the Uterus, *op. cit.*, p. 638.

folding of the mucous membrane of the cervix is unnecessary for the purpose of supplying merely a secreting apparatus of a very simple description.

The chief peculiarities, then, of the cervix (which undergoes hypertrophy in all its parts, during pregnancy, without sustaining any change of contour, or becoming, towards the end of that period, gradually incorporated into the cavity of the uterus, as shown by the researches of Professor Stoltz of Strasburg, and more recently by those of Dr Mathews Duncan¹) are the histological composition of its *middle coat*, in which predominates a tissue always largely employed in the animal economy, wherever great elasticity, tension, and freedom of motion are required, and the nature of its lining membrane, or *inner coat*, which is folded up in a manner so complex as to give the greatest possible extent of surface in the smallest possible space, and to permit it to expand, or rather *unfold*, during childbirth to an almost incredible extent, without suffering laceration.² Besides, its relation with the peritoneum and urinary bladder is such that it inflicts no fatal injury on them by the change in size and shape to which it is subjected,—first, by mechanical expansion, and afterwards passive contraction.

In the mechanism of the cervix, in short, we perceive an admirable contrivance to enable it to undergo, during parturition, a degree of dilatation unparalleled in the human organism,—a dilatation so excessive that its canal, which, before labour in primiparae, is closed, becomes, at the completion of the first stage of that process, expanded to such a degree, that it permits the escape of the head of the matured fœtus, measuring, in its shortest diameter, not less than $3\frac{1}{2}$ inches, and requiring, for its passage, a circle of about 11 inches.

2. *The pathology of placenta prævia* affords important evidence in confirmation of the propositions I have advanced. In cases of this nature extended practical observation, especially the researches of Dr Barnes³ of London, have shown that the whole of that portion of the placenta (whether the entire organ or a portion of it) *abnormally implanted within the lower or cervical zone of the uterus is detached or peeled off during the first stage of labour, while the other portion, normally seated beyond or above the boundary of this zone, retains its attachment until after the expulsion of the fœtus*. In such instances, then, it is obvious that the condition of the uterus, during labour, *above* the line of spontaneous detachment, must be very different, or diametrically opposite, to that of the portion *below*; and

¹ Edin. Med. Jour., vol. vi. p. 773, and Sept. No., 1863.

² Dr Duncan exhibited, at a recent meeting of the Medico-Chirurg. Society of Edinburgh, the cervix uteri of a woman in the eighth month of pregnancy. "The whole cervix was hypertrophied and softened; and this remark applied also to the arbor vitae, of which the anterior and posterior columns were strongly projected."—Edin. Med. Jour., July 1863, p. 83.

³ The Pathology and Treatment of Placenta Prævia. London, 1858.

as the condition above is that of active rhythmic contraction, the opposite condition below must be one of passive or elastic expansion from mechanical agencies. In no other way can the phenomenon just referred to be explained.

If, as I have urged, the cervical region of the uterus is mechanically stretched, during the early stage of labour, to such a degree that its outlet attains a circumference of about 11 inches, it follows that this region must undergo much alteration in shape; it must, indeed, be so shortened at the period when the foetal head passes through it as to form a short band bordering the adjoining portion of the uterus above. That it does actually become so shortened is strikingly illustrated in those cases of *partial placenta prævia* in which only a portion of the placenta is implanted within the cervical zone, its margin reaching the os internum. This portion, of course, is peeled off during the first stage of labour, and at the completion of that stage is found protruding to a considerable extent from the orifice of the uterus, while within the orifice the rest of the placenta is normally adherent.

3. *The gradual thinning, and at last complete obliteration, of the cervix*, as labour progresses, so that at the commencement of the second stage the cavity of the uterus and the dilated vagina form one continuous canal or passage, uninterrupted by the cervix dipping like a fold into the latter organ, affords an important fact in proof of the accuracy of the views I have advanced.

4. *Practical observation* convinces me that the cervical region of the uterus does not contract during a labour pain; the rigidity of which it is then the seat is not evidence of contraction, but the effect of the distending mechanical forces to which it is subjected; these being the pressure of a fluid wedge before rupture of the foetal envelopes, and the presenting part of the foetus afterwards. I have made the subject one of special investigation in numerous instances, and have had the matter convincingly illustrated in those cases of tedious labour in which the anterior portion of the cervix, incompletely expanded, protrudes as a fold between the os pubis and the head of the foetus, preventing the further descent of the latter. When this fold or projection of the cervix is gently slipped over, so as to embrace the head, it can be felt stretching or expanding under the finger during a labour pain. Were this region of the organ to contract, it would greatly impede or entirely suspend the progress of labour.

It follows, therefore, that there is a perfect analogy between the parturient uterus and the urinary bladder during micturition; the mechanical resistance of the cervical region of each organ being overcome by forces acting from above, in the one instance quickly, in the other slowly: the only difference being that the contents of the uterus, being solid and bulky, meet with a much greater degree of resistance, and require for their expulsion a series of frequently-repeated efforts, between each of which there is a period of repose,

while a single contraction is sufficient to evacuate the fluid contents of the bladder.

Now, if the propositions I have advanced concerning the mechanism of parturition, as regards the uterus, be correct—and I have endeavoured to demonstrate their accuracy—we are at once furnished with a key to the establishment of a correct pathology of placenta prævia, and with an intelligible explanation of certain important phenomena inseparably connected with that form of dystocia. Thus we are at once able to perceive why the encroachment of the placenta, even to the slightest degree, within the cervical zone of the uterus is incompatible with normal labour; why any portion of the placenta thus abnormally seated is detached during that process, and its separation attended by hæmorrhage of a character opposite to the accidental and postpartum varieties, in being synchronous with uterine contraction and ceasing in the intervals of relaxation; and, lastly, *why this unavoidable hæmorrhage is spontaneously and permanently arrested at a certain period during the progress of labour*, as I will attempt to show by the following brief observations.

The clinical researches of Dr Barnes have unquestionably shown that the period of spontaneous cessation of prævial hæmorrhage coincides with the period of complete detachment of the placenta from its abnormal adhesion within the cervical zone, however slight or extensive that may have been. But Dr Barnes was unfortunate in attributing the production of these phenomena to “contraction of the cervix;”¹ because both are due to its mechanical dilatation. In cases of placenta prævia during the first stage of labour, this expansion or unfolding of the cervical zone of the uterus and detachment of the placenta from it, proceed *pari passu*, until the period arrives when the portion of the latter abnormally seated is entirely cast off.² The sudden arrest of the hæmorrhage at this period is not due simply to the completion of placental detachment, but *to the degree of expansion which the cervical zone has then undergone: the utero-placental vessels, previously divided on its inner surface, are by this expansion or stretching of its tissues mechanically compressed and occluded in passing through its substance.* In other words: *the remarkable change of contour—of circular stretching and shortening—which this region of the uterus has then been subjected to, and the*

¹ Op. cit., p. 54. In a previous contribution to this Journal, vol. iv., on the *Pathology and Treatment of Placenta Prævia*, I have at some length discussed the merits of Dr Barnes' hypothesis, as well as those of others, to account for the spontaneous arrest of the hæmorrhage before the commencement of the second stage of labour. I need not reproduce the arguments which I then brought forward, but rather refer the reader to the paper in question.

² The flattened and enormously hypertrophied upper extremity of the cervix and surrounding lower border of the uterine body form the saucer-shaped floor of the cavity of the gravid uterus, to which, in prævial cases, the placenta is abnormally attached, and through which the utero-placental vessels pass. This will be easily understood on referring to the figures illustrating Dr Matthews Duncan's papers on the cervix in pregnancy, already referred to.

disturbance of the natural relation of its tissues are so extreme, that bloodvessels can no longer permeate its substance as cylindrical canals pervious to the blood. This mechanical squeezing of the divided utero-placental vessels continues until the fœtus is expelled; passive contraction of the cervix then replaces the previous passive expansion, and in its turn is powerfully hæmostatic in preventing a recurrence of the hæmorrhage after the uterus has been emptied. This is the mechanism by which the prepartum hæmorrhage in placenta prævia, whether partial or central and complete, is spontaneously and permanently arrested.

ARTICLE V.—*On the Antiphlogistic Method of Treatment.* By HENRY VEALE, M.D., Assistant-Surgeon, Royal Artillery.

WHAT are we to understand by the term Antiphlogistic treatment?

Etymologically, it signifies that which is opposed to inflammation; but, as a technical phrase, it usually implies the employment of means for reducing the quantity and quality of the blood.

Formerly very little doubt was entertained as to the efficacy of such means, but in recent times the propriety of depletion in the treatment of acute inflammations has been denied by a large and constantly-increasing number both of physiologists and physicians. It is strange, indeed, that there should be a difference of opinion as to a matter in which the correct observation and interpretation of facts are all that is necessary for the discovery of the truth. The minds of men and their powers of observation are, however, so liable to be warped by the influence of preconceived opinions, that one ought always, before venturing to express a condemnation of their conclusions, to consider the various media, moral and mental, as well as physical, through which the facts themselves may have been regarded.

Thus, if we trace the history of medicine no farther back than the last hundred years, we shall find that the theories which, until recently, have most prevailed concerning the nature of inflammation, have all seemed to sanction and enjoin the practice of depletion for its cure.

Cullen, for example,¹ considered "a spasm of the extreme arteries supporting an increased action in the course of the same as the proximate cause of inflammation." He believed that at least in every considerable inflammation there was increased tension, tone, and activity of the whole vascular system, and that this condition was "most effectually taken off by the relaxing power of blood-letting." To diminish the action of the heart and arteries, and to take off the spasm of the particular part, were his chief indications for the employment of remedies which, whether diluent, refrigerant,

¹ "Cullen's First Lines."

sedative, sudorific, emetic, or purgative, were all, like bleeding itself, although not in the same degree, more or less depletive.

Hunter's¹ view of inflammation was somewhat different. According to his theory, there is in inflammation "either an increase of life or an increased disposition to use with more violence the life which the machine or the part is in possession of; and also there is an increased size of vessels, and of course an increased circulation in the part inflamed, and in the constitution in general."—"We find," he says, "from common observation, that many circumstances in life, as also many applications to parts, will call forth the contraction of the vessels. We are, from the above theory, to apply such means; and whatever will do this without irritation will so far counteract the effects." And again,—“The contraction of the vessels is produced in two ways: one by producing weakness—for weakness excites the action of contraction in the vessels; the other, by such applications as induce the vessels to contract.”—"The means of producing absolute weakness are bleeding and purging."—"The soothing [*i. e.*, the means of *inducing* the vessels to contract] may be produced by sedatives, relaxants, antistimulants, etc."

Alison,² writing nearly fifty years later, says, that "inflammation consists essentially in a local increase of a vital property of attraction existing among the particles of the blood, and between them and the surrounding textures, and with which other vital properties are connected and simultaneously excited." Of the remedies he considers that "the only one on which absolute reliance can be placed is bloodletting;" "the efficacy of which," he adds, "would appear to depend on two principles,"—"to which indeed the powers of all other antiphlogistic remedies may be ascribed; *first*, That it weakens the heart's action; and, *secondly*, That it causes a derivation of blood from the affected parts."

And Dr Watson,³ even in the last edition of his *Principles and Practice of Physic*, says, "Blood being the natural stimulus of the heart, we should deem it probable that the removal of a portion of that fluid would diminish the force with which the heart contracts; and as an inflamed part contains a preternatural quantity of red blood, and as (with the exception of resolution and mortification, which really are *terminations* of inflammation) all the *events* of inflammation depend upon the exudation of certain parts of the blood from its containing bloodvessels, we should be inclined, *a priori*, to believe that the amount of those exudations would be checked and limited by lessening the supply of blood to the inflamed organ, as well as by abating the force with which the blood reaches it. And we find it in fact to be so." "Blood," it is added, "forms the pabulum of the whole process;" and the conclusion follows,

¹ Hunter on the Blood, etc., pp. 334 and 335, *passim*; London, 1793.

² Outlines of Pathology; Edinburgh, 1843.

³ Principles and Practice of Physic; London, 1856.

that "the great remedy in acute and dangerous inflammation is bloodletting."

Other theories have been advanced at various times, and have appeared equally to support the practice of depletion; but I have quoted the above-named authors in preference to others, because they have been either the originators or the most commonly accepted exponents of the main principles on which medical practice has been based, at any rate in this country, during the last hundred years. It would be foreign to my present purpose to attempt a refutation of their doctrines in detail, I shall therefore assume that these are no longer tenable, referring only to the works of Paget,¹ Virchow,² Todd,³ Bennett,⁴ and Carpenter,⁵ as my authority for doing so.

But the question, as to whether in inflammation there is an increase or a decrease of the vital powers, is one of so much importance, when considered in reference to bloodletting as a therapeutic measure, that it may not be amiss to devote a little time to its further examination.

Although one cannot but acknowledge that Hunter was right in the distinction which he drew between the healthy and the unhealthy inflammation, it by no means follows that either the one or the other is ever of a *sthenic* character; if by the word *sthenic* there be meant an increase of the *vis vitæ*, acting either as a cause or as a concomitant of the process. Certain inflammations, in fact, are healthy or unhealthy according as the body in which they occur happens to have been in good health or bad. Thus the *simple* inflammations may or may not be healthy; but the *specific* inflammations, such as the gouty, the rheumatic, the scrofulous, the diphtheritic, the syphilitic, etc., are always more or less unhealthy. The former—*i. e.*, the healthy—tend to run a speedy course and to terminate favourably; the latter—the unhealthy—have a proneness to run on indefinitely, to impair the organism, and to end unfavourably; but in neither case can it be shown that there is an increase, or indeed anything but a decrease, of vital force. The transition from the healthy to the unhealthy inflammations is by insensible gradations, and, notwithstanding that the two extremes are sufficiently distinct, the difference between them is mainly one of degree.

Perfect health, it may be said, is that state in which the vital powers are at their highest point, and it implies an ability to perform with efficiency and ease all the various functions for which the organization of the individual may be adapted. This definition of health, although perhaps not unexceptionable, is still sufficiently correct for our present purpose. Health, then, as I understand it,

¹ Lectures on Surgical Pathology, edited by Dr Turner, 1863.

² Cellular Pathology, translated by Chance.

³ Clinical Lectures "On Certain Acute Diseases."

⁴ Lectures on the Molecular Pathology, in Lancet, 1863.

⁵ Principles of Human Physiology, 1856.

is something more than mere life—it is the perfection of life; and if this view of it be the true one, then any deviation from the condition which it involves can only be in the direction of the opposite state, viz., death—the cessation of vital power. Hence it may be inferred, that even the existence of inflammation in the body is a proof that the latter has suffered a decrease of its vital force; and this conclusion is supported by the fact, that such an affection renders the system unable to resist those predisposing and exciting causes of disease, which, under ordinary circumstances, it would sustain with impunity. It would also follow, as a necessary consequence, that the symptoms by which inflammation manifests itself, no matter what impression they may be calculated to convey to the minds of the unskilled, ought to be regarded as indications of diminished vitality, differing only in degree.

It is more than probable that, in considering the etiology of inflammation, systematic writers have not hitherto been in the habit of attaching sufficient importance to the influence of great functional activity as a predisposing cause. The liability to diseases of the thoracic organs in the inhabitants of cold and temperate climates, shows the effect of great and long-continued functional activity on the part of the lungs in predisposing them to inflammation; and the tendency to disorders of the abdominal organs in the inhabitants of tropical countries shows the same fact no less clearly. Excessive functional activity, or, in other words, the over-exertion of a part, necessitates indeed an increased degree of nutritive activity, from which condition to that of actual inflammation there is but a single step. But health is only compatible with a proper control over a due regulation and balancing of the nutritive process; the moment this control is lost there is a departure from the healthy state, and inflammation, as we call it, is the result. Mammitis, pneumonia, hepatitis, etc., are oftentimes examples of nutritive powers overtasked in consequence of excessive functional activity. In such cases there is nothing that can be considered truly sthenic:—the vital force is not increased; on the contrary, it is simply overborne.

The objections to the theory that the process of inflammation had as its concomitant an increase of the vital powers, did not fail to present themselves to the sagacious mind of Hunter. Thus, he observes, towards the close of his immortal work, “Whether the disposition for inflammation and the change produced in the blood arise from a real increase of animal life, or whether it is only an increase of a disposition to act with the full powers which the machine is already in possession of, is not easily determined; but it appears to be certain that it is either one or the other. There are some circumstances, however, that would incline us to suspect it to be the latter; because there is often inflammation when the powers of the machine are but weak, when it appears to be only an exertion of very weak powers arising from some irritation produced.”

In this passage, an increase of the vital *force* is evidently distin-

guished from an increase of vital *action* resulting from diminished power; and one cannot but feel surprised that the mind which could perceive so distinctly the direction in which the truth lay, should at the same time have entertained the notion that there was such a condition as that of a too perfect health. It is necessary to make another extract here, in order to show on what grounds the latter theory is based.

"I do not," he remarks, "look upon full health as the best condition to resist disease; disease is a state of body which requires a medium; health brooks disease ill; and full health is often above par. Persons in full health are too often at the full stretch of action, and cannot bear an increase, especially when diseased; and, as I before observed, it is a new impression on the constitution, and till it be in some degree accustomed to local disease, it is less able to bear such as is violent."¹

To any one who takes the trouble of carefully examining this part of Hunter's work, it must, I think, become evident that Hunter fully perceived the inherent weakness of this theory, and its opposition to the whole tenor of his observation and reasoning. Indeed, it is difficult to avoid the conclusion, that it was put forward in order to reconcile the practice of depletion, so universal in his day, with his entire conviction that "strength probably under every circumstance produces good results."²

Certainly, it used formerly to be the practice of surgeons to submit their patients to a course of purgation and low diet before performing any serious operations; but a more enlightened experience has fully proved that, in surgical practice, the theory that "health brooks disease ill," is entirely erroneous; nay, more, that it is the very opposite of the truth; and consequently we find that in the present day no surgeon ever thinks of adopting this practice. Where shall we now look for a man "in full health?" To the prize-ring, I imagine, if any where; but if we refer to the records of "*Bell's Life*," we shall find that Sayers and Heenan, being in the highest possible condition, or, in the language of Hunter, "in full health," and even "at the full stretch of action," recovered with extreme rapidity from the injuries which they sustained in their memorable conflict. The whole history of the prize-ring, of the stable, and of the cock-pit, is adverse to the theory that "health brooks disease ill." Men in the most perfect health, or "*in the highest condition*," according to the sporting phrase, recover "with wonderful facility from the effects of injuries, and their wounds heal very rapidly."³ The fundamental error, in fact, has consisted in the supposition that inflammation was attended with an increase of vital force. The terms "vital action," "vital activity," "vital powers," and the like, have often been used too loosely, and as if

¹ Hunter, op. cit., p. 233.

² Ibid., p. 228.

³ Carpenter's Human Physiology, 1856.

they were mutually convertible; whilst the outward manifestations of abnormal or "*increased*" action have been looked upon as proofs of an increase of vital strength. As Dr Carpenter observes, "Although it has been customary to speak of inflammation as a state of increased action in the part affected, of which increased action the augmentation in the bulk and weight of an inflamed part, and in the quantity of blood that passes through it, together with its high temperature and more acute sensibility, would seem to furnish sufficient evidence; yet all these signs are found to be deceptive when they are more closely examined; and the conclusion is forced upon us, that the vital power of the part is really *depressed* rather than *exalted*."

It seems to me that, in the controversy which has taken place on this question, too much reliance has been placed on the idea that there are sthenic and asthenic "waves of time," according to the picturesque expression of Dr Watson.¹ The statement of Dr Alison,² that "the symptoms and particularly the constitutional fever usually attending internal inflammations have undergone a very considerable change since the early part of the present century," however valuable as the opinion of an eminent physician, has been accepted, it is probable, more from deference to his authority than from regard to the facts themselves. If we were to take our opinions concerning inflammation and its treatment solely from the writings of Cullen, Gregory, Armstrong, Alison, Clutterbuck, Watson, etc., we should be compelled to admit that, from the time when Cullen wrote up to a very recent period, the sthenic type of inflammation continued to prevail; and, indeed, it seems difficult at first sight to resist the evidence of so many and such excellent observers. But we must remember, if we would seek to be impartial in our judgment, that there are authorities to be cited on the opposite side of the question. Brown, for example, although a pupil of Cullen, did not hesitate to proclaim a doctrine that differed entirely from that of his master. But there were circumstances connected with the career of Brown which prevented his contemporaries in this country from acknowledging his merits as a physician. Abroad he has been held in higher estimation; and it is to be hoped that his writings will before long assume amongst ourselves the prominence to which their unquestionable ability entitles them. As, however, the value of his evidence may still be called in question, I shall not lay any stress on it; and I may dispense with his testimony the more easily, because the writings of John Hunter can be adduced on the same side. The remarks made by him, now exactly seventy years ago, almost seem as if they had been written yesterday. "It is observed,"³ he says, "by some of the ablest physicians of this day, that the fever

¹ Watson, *op. cit.*

² Alison, *Edinburgh Medical Journal*, 1857.

³ Hunter on the Blood, etc., 1793, page 227.

called inflammatory is now not so common in this country as it was formerly represented to have been; that it is now seldom that in fevers they are obliged to have recourse to the lancet, at least to that excess which is described by authors in former times. They are now more obliged to have recourse to cordials than evacuations; and indeed the disease called the putrid fever and putrid sore throat [diphtheritis?] are but of late date."—"I remember when practitioners uniformly bled in putrid fevers, but signs of debility and want of success made them alter their practice."—"Whether the same difference takes place in inflammation I do not know, but I suspect that it does in some degree."—"I believe we have much less occasion for evacuations in inflammation than there were formerly; the lancet, therefore, in inflammations and also purgatives are much more laid aside."—"We certainly live now more fully than what they did formerly. We may be said to live above par. At the full stretch of living, therefore, when disease attacks us, our powers cannot be excited further, and we sink, so as to require being supported and kept up to that mode of life to which we have been accustomed."

It is almost incredible that these words, corroborating so strongly the observations of Brown, and written probably during the lifetime of Cullen, Gregory, and Alison, have never received the attention they deserve. It is evident that, if we may consider Hunter as a competent witness in this matter, an adynamic phase of disease prevailed whilst he lived and wrote; but if we believe this statement, we must disbelieve the assertion that Cullen and Gregory, and their disciples, were correct in their views, or in the practice which they adopted for the treatment of inflammations. Furthermore, if we admit this evidence of Hunter, and also believe, with Winslow,¹ Clark,² and others, that the human race is still undergoing deterioration, owing to the excesses and vices of civilisation, we must wonder how it happens that man still manages to live his "threescore years and ten;" for the present, "adynamic wave" seems to have lasted very nearly a century; and if we are to judge from the practice that is every day becoming more and more general, of "having recourse to cordials rather than to evacuation," it is still very far from being likely to give place to one of a sthenic character.

The advocates of the change-of-type theory appear to have ignored altogether the evidence of Hunter concerning the medical constitution, as it is called, of the time in which he lived; and therefore, until farther proof is adduced in favour of this hypothesis, we shall be justified in refusing to accept it. We may likewise be entitled to doubt whether the degeneration of the human race has not rather been a convenient theme for the sickly fancies of the poets than an actual fact; for such a continual process of degra-

¹ Journal of Psychological Medicine, July 1857.

² Treatise on Pulmonary Consumption.

dation as the poets have conceived, and many medical writers have really believed in, would, if there be any truth in Darwin's theory, have made gorillas of mankind long before now had it been really in operation.

Apart, however, from all theories as to the nature of inflammation, the practical question, "Whether the abstraction of blood in whole or in part opposes the process of inflammation," has yet to be considered. The advocates of the practice assert that nearly all the medical authorities, from the earliest times until the present, have treated acute inflammation by such means, and have approved of doing so; and this answer would seem almost sufficient to place the matter beyond a doubt; for it is not likely that the medical practitioners of all ages and of all countries should have been mistaken in supposing that bleeding afforded relief to their patients when suffering from acute inflammation. It is still less likely that those who have had experience of the remedy in their own persons should have been deceived as to the nature of their own sensations. In face of all the evidence on this point, I think it is impossible to deny that inflammation may sometimes be cured by bleeding. The theories that have prevailed at different times concerning its mode of action may have been erroneous, but the fact remains, and has yet to be explained.

That the curative effect of the remedy is not attributable to the removal of the corpuscular elements of the blood, nor of the fibrine, nor of its other constituents taken separately, has been sufficiently proved by the researches of Andral and Gavaret, Becquerel and Rodier, by Todd, Bennett, and others; and we are therefore led to inquire, whether the effect is attributable to the loss of blood *per se*, or whether there may not be some other element in the case which requires to be taken into consideration. Before entering directly upon this inquiry, however, I must beg to make a brief digression.

A riddle always appears a wonderfully simple thing when its solution has once been learnt, and so does any mystery of nature seem to be *after* it has been interpreted to us. What is there, for instance, more easily intelligible now than the law of gravitation, or than that of the correlation of forces? What more simple than the leaf-theory of Goethe, or more obvious than the circulation of the blood? And yet, for ages upon ages, men remained in ignorance concerning these matters, although constantly endeavouring to discover the truth. Now that we have learnt to admit that nature and not the physician cures disease as a general rule, we have devoted ourselves with more assiduity to the observation of her processes; and we are gradually coming to the belief that, for the cure of the vast majority of our ailments, we have only to allow nature to work without impediment. At first sight this may seem a very easy task to perform, but it is not so in practice, because infinitely more skill and more accurate observation are required *not* to interfere with the curative efforts of nature than to become

proficient in all the complications of any system ever yet propounded by man. We are only just now beginning, after centuries of distrust, to believe that nature's plan for the treatment of inflammations is generally the best, and that if we second her efforts in an intelligent manner, we adopt the safest course for our patients.

It frequently happens that we may see a law or a plan of nature more clearly manifested in the actions of the inferior animals than in those of man himself. It would almost appear as if the instinct of self-preservation were more forcibly developed in them than in ourselves. With all our "boasted civilisation," and all our recent progress in sanitary science, we cannot yet place ourselves on an equality in hygienic matters with our horses, our dogs, or our cats. These, like all other animals, are liable to inflammation, which we may observe in its simplest form when it occurs as the result of external injury; and what is it we find that nature prompts an animal to do when it has sustained a serious hurt which inflammation must follow? In the first place, it withdraws itself from the society of its fellows; it gives itself absolute repose both of the injured part and of the whole body; it abstains from food, but not often from drink; and if the wound be accessible, it licks the part constantly with its tongue. Observe the extreme care shown by dogs of the greatest pluck, dogs that have seemed almost insensible to pain whilst engaged in fighting,—observe the care they take afterwards not to move or to use the injured and inflamed limb, and then mark the wonderful rapidity with which their wounds heal. There is no depletion in these cases; there is nothing but the absolute rest which their seclusion, in whatever lair they may have found, gives to their nervous, muscular, and nutritive functions, as well as to the part itself. Probably, if man were to obey his instinct only when he had sustained a serious injury, he would act in a somewhat similar manner; but the solicitude of his friends and neighbours, and eventually his own excitable thinking faculty, are generally more than sufficient to overrule his instinct.

When once we have obtained a clear conception of the work we ought to do, we have already advanced a long way towards its accomplishment. The removal of the obstacles that intercepted our mental vision renders the task comparatively easy. As soon as we understand that our object in the treatment of acute inflammations should be not to exert a "sedative influence on the heart and arteries," not to render the blood less plastic—"less stimulating," as the phrase went, not "to cut off the supply of blood from the inflamed part," not to "empty its gorged capillaries," nor even to make way for the speedier operations of our mercurials and antimonials and cathartics, but simply to imitate nature's method, and suspend the functional activity of the oppressed part, then the means of doing so increase exactly in proportion to our knowledge of what its functions are. This would seem to be the true rational

medicine, having its basis on a correct interpretation of nature's mysteries: in other words, on physiological science.

In the management of any acute inflammatory disease,¹ from the smallest boil to the gravest inflammation of the heart, the lungs, or the brain, we find that nature is consistent in her plan. For all she prescribes *rest*, which she varies only in degree. The loss of appetite which so constantly attends acute inflammation, and which has often been supposed to be an indication for depletion held out by nature herself, I think we ought to regard as the strongest manifestation that she requires rest for a time, even from the task of converting food into blood. The danger to life would seem to be so great in such cases, that all her *disposable* forces, all her *vis in esse*, are summoned into the citadel, as it were, to guard it from the enemy who is seeking to obtain an entrance there. By and by, when she shall have gathered up all her *radical* strength, all her *vis in posse*, and the enemy shall have been thereby overcome, she will not fail to occupy her outposts again. The *pain* of inflammation is also to be considered as a signal for rest. Pain seems to be the means which nature employs in order to enforce the suspension of functional activity in an inflamed part; and the circumstance is sufficiently remarkable, that the pain of inflammation is generally most severe in those parts where rest is most easily obtainable. There is not much pain, for instance, in pure bronchitis or in pure pneumonia, and we know that the action of the lungs cannot be arrested for more than a very brief period without death as the result; but in pleurisy there is often intense pain, and the parts concerned in this case do admit of their functional activity being diminished. An inflamed joint, an inflamed bone, an inflamed finger, or an inflamed eye, are all intensely painful, and pain in all these cases leads to functional rest; but an inflamed liver, an inflamed kidney, and notably an inflamed heart, are not very painful, and in them we find that pain would not obtain rest. The pain of peritonitis and enteritis, again, does necessitate rest, and inasmuch as it does so, it serves a useful purpose; but then in treatment we must remember that "pain kills," it exhausts the vital force; and therefore our object should be to assuage it certainly, but to do so in such a way that the functional activity of the oppressed part may still be kept in abeyance. Opiates answer this twofold purpose, but it is necessary that they should be given in much larger doses than are usually employed. In the treatment of injuries sustained on the battlefield especially, I can assert, from a sufficient experi-

¹ It would be easy enough to give instances of inflammations that required nothing except rest for their termination in health, for most of the simple inflammations are of this kind; but it must not be supposed, from what has been said in the foregoing pages, that the specific inflammations require nothing else to ensure a similar result. On the contrary, any given specific inflammation may perchance need its special remedy or remedies, and it is in this respect that the preparations of the pharmacopœia resume all their importance.

ence, that their employment in this way is absolutely indispensable.¹

Returning now from this digression, we may resume the inquiry, whether the beneficial results of bloodletting are produced directly or indirectly; whether, in fact, it is the loss of blood that affords relief, or whether loss of blood is only a means of developing the conditions for obtaining it.

This question is by no means so easily answered as might at first be supposed; because, in almost all instances where depletion is effected, rest of the inflamed part, *i. e.*, a suspension of its functional activity, more or less complete, is also obtained. If it were possible for active depletion to be made without enforcing thereby a greater or less degree of this suspension of functional activity, the crucial test could easily be applied; but this not being so, we can only reason from probabilities. That the actual abstraction of blood is not essential may be inferred from the case reported by Dr M. Solon, and quoted by Dr Watson,² of erysipelas cured by a succession of fainting fits, without the loss of a single drop of that fluid; and I think it may be safely asserted, on the other hand, that loss of blood, without a suspension of functional activity in the part, would prove of little value. Let a man have a traumatic inflammation of the integument of his arm, for example, and let him, through sheer force of will, continue to use the limb, and thereby to enforce the functional activity of the inflamed area, and I think it will be generally admitted that no depletion which did not necessitate rest would cause the inflammation to subside. Then, again, all observers agree in stating that bleeding, to prove effectual in the cure of inflammation, depends more upon the manner in which it is effected than on the absolute quantity of blood taken away. The blood was to be drawn *pleno rivo*, the patient being in an erect or sitting posture. As Dr Watson says, "If you neglect these small matters, and make an insignificant slit in the vein, and suffer your patient to lie down whilst you are bleeding him, you will be obliged to take much more blood in the end; or you may drain him of his blood and of his strength by repeated bleedings of this sort, and make no impression after all on the disease."

I have already expressed myself ready to believe the statements of the older physicians, as to the relief which bleeding sometimes afforded, and I see no reason to suppose that similar results might not be obtained in the present day. There is no necessity to deny the facts as some have done, or to attempt to explain them away as

¹ In stating that these remarks were written prior to the publication of Mr Hilton's "Lectures on Pain and the Therapeutic Influence of Mechanical and Physiological Rest in the Treatment of Accidents and Surgical Diseases," I do not desire in the least to dispute that gentleman's claims to originality of thought and research on the subject in question. Notwithstanding the similarity of certain of our conclusions, the considerations which have led to them have obviously not been the same.

² Watson, *op. cit.*, 1st vol.

others have sought to do, if we admit that loss of blood causes a diminution or suspension of the functional activity of an inflamed part; and that it is capable of effecting either may, I think, be easily proved. "You see a person," says Mr Lawrence, "with his eye bright red and very painful; he cannot face the light, and tears gush out with great suffering if he attempt to do so. You bleed to fainting, and immediately the capillaries are emptied, so that the organ resumes its natural paleness; the pain is gone, the eye is opened without difficulty, and the full influx of light can be borne without an uneasy sensation. For a time the part has passed from inflammation to a nearly natural state."¹ But notwithstanding this relief the inflammation is probably far from being cured, for all the symptoms are only too likely to recur as soon as the circulation is restored. The rest afforded by the bleeding has not lasted long enough to allow of the nutritive activity recovering its proper balance. In some cases, it might happen that a single bleeding would give a sufficient rest to admit of recovery taking place; but in the majority it would be necessary to repeat the venesection; and oftentimes, according to the old expression, such a repetition would either, "*kill or cure.*" Therein lay the danger, and the question arises, Does bleeding afford the best means of obtaining the rest that is required? Formerly it may have been, and probably was, the best, because it was the only one known; but now-a-days the case is altered. Knowing what we now know of the inflammatory process, knowing that it requires a well-conditioned blood for its satisfactory evolution, and that "the excitement of the circulatory system," the rapid and bounding pulse," "the redness, the swelling, and the heightened sensibility,"—all betoken diminished and not increased vital power; knowing all this, must we not ask ourselves, whether in abstracting not only so much by weight of the circulating fluid,—the "liquid flesh," as it has been called, but the richest and most highly elaborated part of it,—we are not paying too high a price for the benefit we expect to receive? Granting that we find it absolutely necessary to give rest to the labouring heart, lung, or liver, have we no other means of doing so than the abstraction of the *pabulum vitæ* itself?

The answer must now be made in the affirmative; for we have not only means as certain, but even more effectual and infinitely safer. Their action may not be so speedy, but they are less costly; and "slow but sure" is a quality far preferable in this case to the brilliant but uncertain.

Let us now consider and contrast the two methods of treating a case of acute inflammation,—of simple pneumonia, for example.

According to the ancient method the means employed were,—

1st, *Bleeding*: the effects of which were a temporary rest or suspension of functional activity, both of the inflamed part and more or less of the whole body, but, at the same time, a deterioration of

¹ Lawrence, Treatise on Diseases of the Eye.

the blood and a diminution of the vital power, which the occurrence of the inflammation had of itself shown to be already seriously impaired.

2d, The administration of mercury: which still further impoverished the blood, and thereby depressed the vital power without any compensation whatever in the way of rest.

3d, The use of antinonials: these afforded rest, but only at the cost of producing nausea and depressing the vital power. When given as sudorifics they perhaps acted more beneficially, as we shall see in the sequel; but they were very rarely indeed prescribed with this object only.

4th, Purging: this, according to the extent to which it was carried, impaired the quality of the blood, lowered the powers of life, and over-exerted the body, instead of affording rest to it. It must, however, be stated, in justice to our immediate predecessors, that they had themselves recognised, if not the injurious effects, at least the inutility of purgation as a curative means.

5th, Prolonged abstinence from all kinds of nutritive food or stimuli,—a measure that necessitated rest truly, but at the same time compelled the body to live on itself as it were, and thereby maintained and tended to increase the depression of the vital powers.

6th, Local depletion, by cupping and leeching, producing effects differing only in degree from those of general depletion.

7th, Counter irritation, by blisters and rubefacients, sometimes perhaps proving beneficial, but generally quite inadequate to change the action of an acutely-inflamed part; and in such cases becoming hurtful, by deteriorating the quality of the blood, and by exhausting the nervous system through pain.

There can be no reason to doubt that this method of treating inflammation was often enough successful, when carefully employed, to justify the belief that even recourse to it was better than no treatment at all; and there is every probability, I think, that if still adopted the results would be the same; but there is this source of danger inherent in the whole system, that its tendency is to diminish the powers of life, and to *kill* if it does not *cure*. Such a reflection should make us pause ere we sanction the use of such deadly two-edged weapons. Very few persons, indeed, could wield them with the nicety and dexterity necessary to do good; whilst the majority of us would be almost sure to strike beyond the mark, and to do harm instead.

Happily, a safer and more rational treatment is gradually but steadily gaining ground; but, in order to understand its application in any given case, we have first to determine what the functions are to which we propose to give rest.

Now the chief offices of the lungs are,—*1st*, To supply oxygen to the blood; *2d*, To remove carbonic acid from it; *3d*, To exhale watery vapour more or less charged with animal matter.

The demand for oxygen and the quantity of carbonic acid re-

quiring to be exhaled bear a direct proportion (*a*) to the degree of nutritive and formative activity in the tissues generally, (*b*) to the amount of functional activity of the nervous and muscular systems especially, and (*c*) to the greater or less necessity for maintaining the heat of the body by the internal combustion of carbon and hydrogen. Consequently, if we could "fix the state of nutrition," or retard the process of decomposition in the body, suspend all its nervous and muscular actions, and render unnecessary the maintenance of its heat by the process of internal combustion, we should give the lungs absolute rest, and place them in the conditions most favourable for recovery when inflamed; but unfortunately we have no certainty of being able to arrest the process of nutrition, without producing an injurious effect on the vital powers. So long as life remains this process must be carried on; and as the presence of oxygen is indispensable for its performance, and as this gas enters the body almost entirely through the lungs, absolute rest of these organs during life is impossible. Still, to whatever extent we can succeed in reducing the consumption of oxygen in the body, to the same degree we can suspend their functional activity; and as a general rule it may be affirmed, that the causes which bring about a diminished elimination of carbonic acid are a measure of those which render a smaller supply of oxygen necessary. The effect of a high temperature of the air in reducing the functional activity of the lungs may be presumed from the immunity from pulmonary diseases enjoyed by the inhabitants of tropical countries; and its influence in diminishing the exhalation of carbonic acid has been shown by Vierordt¹ to be so great, that between 38° F. and 75° F. the human subject experiences for every rise of 10° F. a decrease of two cubic inches per minute in the quantity exhaled. A dry state of the atmosphere also seems to cause a diminution in the rate of exhalation of carbonic acid. Thus Lehmann has shown, that "while one thousand grammes' weight of rabbits exhaled in *dry* air 0.451 gramme per hour at a temperature of 100°, they exhaled as much as 0.677 in a *moist* atmosphere at the same temperature."²

Absolute repose of the muscular and nervous systems, sleep, abstinence from solid animal or farinaceous food, and, contrary to what might have been expected, the use of alcoholic drinks under certain circumstances, also diminish the exhalation of carbonic acid; whilst their opposites, viz., exercise, either of the mind or body, want of sleep, a diet of animal or farinaceous substances, etc., tend to increase it. Again, it is a well-ascertained fact, that the lungs, and the skin especially, are able to supplement each other to a considerable degree; and that the kidneys, the liver, and the intestinal canal, are also capable, more or less, of performing the functions which, under normal conditions, are performed almost solely by the lungs; and it is reasonable to suppose that the more active these

¹ Physiologie des Athmens, 1845.

² Quoted from Carpenter's Physiology, 5th Edition.

organs are within certain limits, the less must be the amount of work required to be performed by the lungs.

Keeping in view, then, the two principles here indicated, viz., the reduction of the special function of the lungs to the lowest point compatible with the performance of the processes of life, and the substitution, as far as possible, of its subordinate functions by an increased activity of the skin, the liver, the kidneys, and the intestinal tract, we may, by the adoption of these two plans, and by their judicious combination, succeed in giving to an inflamed lung that amount of rest which is necessary for the process of recovery. Indeed, the fact is indisputable, that by this method, properly carried out, we actually do succeed in rendering pneumonia a much less fatal disease than it used to be when phlebotomy and general depletion were the measures commonly resorted to, or than it is even now found to be when treated by such means.

The correct treatment of acute inflammation of the lungs, then, consists in maintaining,—

1st, *A uniformly high temperature in the ward or sickroom* (say from 70° F. to 80° F.), and *as dry and pure a state of the atmosphere as possible.*

2d, *Absolute rest of mind and body*,—to ensure which the administration of narcotics and anodynes in large doses will often be found necessary.

3d, *Abstinence from animal and farinaceous food.*

4th, *The ingestion of cooling drinks*, saline or acidulous, according to the case and the desire of the patient.

5th, *The use of remedies that tend to increase the functional activity of the skin, kidneys, liver, and bowels*,—for which purpose the acetate of ammonia will generally prove sufficient, but a cholagogue cathartic may occasionally be required in addition, if the tendency to constipation be greater than usual.

6th, *At no very long period after the establishment of the disease, two or three days at most, the use of wine*, at first diluted and in small quantities, but increased both in strength and amount as the disease progresses.

7th, *A careful watching for the first signs of returning appetite*, when the sensations of the patient will best indicate the kind of food that will be most suitable. Most frequently the desire is first for soup, milk, or jelly; and shortly after this stage he will be able to eat, and will be the better for eating, animal food itself.

It is almost impossible to over-estimate the importance of maintaining the atmosphere dry and pure, but especially at a *uniformly high temperature*. Attention to this point should never be omitted. By night, and all night as well as during the day, a bright clear fire should be kept constantly burning in the ward when acute inflammation of the thoracic organs has to be treated. It is far safer to rely on this measure alone, in such cases, than to employ any of the drugs contained in the whole pharmacopœia, but it is to be feared

that the excessive zeal of our would-be sanitary reformers is often only too successful in frustrating it. How constantly may we observe, during the winter, patients affected with inflammation of one or other of the thoracic organs exposed to a temperature of 50° F. at best by day, and to one as low as 30° F. or 40° F. by night! It is not in country districts alone, or in the miserable garrets of the poor, that such things are to be seen. Foul air unquestionably is only another name for slow poison, but it is probable that very cold air produces effects quite as injurious on the sick and the sleeping. Nor should we ever relax our vigilance in maintaining absolute repose of the mind in all dangerous and acute inflammations. In this respect the human subject should be reduced as nearly as possible to the condition of the brute creation; nay, even to that of the simply organic or vegetative, as distinguished from animal existence. It is needless, however, to say that this would be wholly incompatible with the plan of treatment which we have seen reason to condemn. What with leeching, cupping, blistering, purging, nauseating, salivating, and the like, which constituted the orthodox treatment of our ancestors, and perhaps is even still practised somewhat too often, how was it, or is it, possible for the nervous or even the muscular system to obtain repose?

On the other hand, it must be confessed that the rational method often fails to impress the *profanum vulgus* with the belief that sufficient is being done. "Do you call *that* treatment?" said an elderly medical man once in the ward of an hospital where it was attempted to be carried out. "According to my opinion," he added, "that is no treatment at all." And to those who happen to be profoundly ignorant of physiological and pathological science, it certainly has not the striking effect which is produced by a copious bleeding, *coup sur coup*, by a constant retching, by a violent purging, or by a profuse salivation. It is even doubtful whether it gives to the patient himself that degree of confidence in his doctor which the sudden and marked though temporary and fallacious relief of a copious bleeding so frequently affords. Whatever vividly impresses the imagination of the patient or the bystanders, even though it cause intense suffering, is pretty certain to receive credit for a large share in the cure. The popular mind puts immense faith in cupping and blistering, for instance: such measures satisfy it that "something is being done" at any rate; and as the popular mind is generally very ignorant, and believes without reasoning, charlatans make use of their knowledge of this weakness for the furtherance of their own low designs. Charlatans deserve punishment; but no reproach can be too severe, no contempt too profound, for the conduct of those who, without being charlatans, endeavour to prostitute to base purposes the means which science has consecrated to the alleviation of human suffering.

I have dwelt at the greater length upon the treatment of acute pneumonia, because it was necessary to illustrate by an example the

principle which I have sought to display and to enforce ; but it would be obviously impossible within the limits of this paper to show its application to the treatment of all the acute phlegmasiæ. Such a task would almost necessitate the compilation of a treatise on the whole science of physiology and pathology. Sufficient, however, has been said, I trust, to justify the following conclusions :—

1st, That, according to the present state of our knowledge, the natural and proper method of treating acute inflammation consists in diminishing or suspending the functional activity of the affected part.

2d, That depletive measures only prove beneficial in proportion to the extent in which they fulfil this indication ; that the employment of them is extremely hazardous, besides being unnecessary ; and that their curative effects are always uncertain.

3d, That the means to be adopted for the treatment of acute inflammation, although always the same in principle, should be varied according to the functions of the parts concerned.

ARTICLE VI.—*Case of Enlarged Ovary ; Tapping through Vaginal Wall ; Recovery.* By J. BRISBANE, M.D., Galashiels.

THIS patient first came under my care during the autumn of 1860. At that time she was suffering from a severe attack of intestinal irritation, consequent on neglect of the bowels. By means of enemata, purgatives, opiates, etc., this was removed, and she recovered satisfactorily. I cautioned her shortly afterwards against similar neglect. Whether from misunderstanding my injunctions, or from a too eager desire to carry them into effect, instead of using gentle laxatives, she had recourse to drastic purgatives. After taking a dose which purged her very severely, she felt something which she described differently at different times. At one time she described it as “if something had been torn in her inside ;” at another, as “if something had passed suddenly from her right to her left side.” Ever after this she stated that “there was something there (in the left iliac region) which should not be.”

Shortly afterwards I lost sight of her, and in the meantime she got married. Sometime after this she again came under my care. At that time she complained of uneasiness deep in the left iliac region, with a sense of fulness and stretching, and slight pain on pressure. On examination per vaginam, considerable fulness was discovered in the region of the left ovary. After being under treatment for some time without any decided improvement, she was seen by Prof. Simpson, who suggested tincture of iodine locally, and a salt of iron internally. By means of these, and afterwards iodine of potassium internally, she improved somewhat, and I again lost sight of her for nearly two years.

I again saw her in January last, when she complained of the same symptoms, though somewhat intensified in degree, and there was in addition an attack of *menorrhagia*. Shortly after, Prof. Simpson was again consulted, who proposed to tap the enlarged ovary through the vaginal wall by means of a fine trocar.

As, however, she was suffering from *menorrhagia* at the time, and as Prof. Simpson thought this might be dependant on an intra-uterine polypus (a small polypus had once been removed before), he suggested that I should, for the purpose of ascertaining this, introduce sponge tests, in order to dilate the os. No polypi were found, and shortly after the *menorrhagia* stopped spontaneously. The patient was to see Prof. Simpson again in a few weeks, who would then proceed to operate.

She, however, became worse daily; the pain in the pelvic region, radiating over the abdomen, became excruciating. A severe burning heat was also felt, and in defecation great difficulty and violent straining was experienced. Her pulse mounted to 120, the tongue became coated, and great debility supervened. It became perfectly evident that it would be impossible to have her removed to Edinburgh. My friend Dr Brown of Melrose now saw her along with me. In consultation it was agreed that we should ourselves proceed to tap.

At this time, on examination per vaginam, a smooth globular tumour, somewhat larger than a walnut, situated behind and to the left of the uterus, was felt. On examination per rectum it was felt more distinctly. From the pressure of this upon the rectum, great difficulty and pain were experienced on defecation; nor indeed could a stool be passed at all unless it were liquid. It was also found almost impossible to throw up enemata, the nurse stating that there was some obstruction which forced back the fluid as fast as she pumped it up. On touching this swelling, either per rectum or vaginam, the patient at once recognised it as the centre of all her sufferings.

Assisted by Dr Brown, I proceeded to tap. Before plunging the trocar into the swelling, I suggested that one of Dr Alex. Wood's syringes should be introduced as a sort of *exploratory* puncture. The uterine sound being introduced, and the uterus held aside by Dr Brown, I introduced, guided by the index finger, the nozzle of the small syringe, and plunged it into the tumour. By elevating the piston I thus filled the syringe, and removed about 3i. of clear amber-coloured fluid. It was thus introduced several times; and had the nozzle of the syringe been of sufficient length, so that I could have unscrewed it externally to the vagina, I could thus have emptied the cyst almost entirely. As, however, the screw of the syringe was situated considerably within the vaginal orifice, so that it was very difficult and almost impossible to screw and rescrew it so often, I plunged a fine trocar into it, and allowed the greater portion of the fluid to dribble away. The fluid thus drawn off was of a clear

amber colour, perfectly homogeneous, and coagulated immediately into a stiff tenacious jelly. It was evidently an inflammatory product. I have no doubt that a chronic inflammatory action had been set up in the left ovary, consequent on the violent purging to which she subjected herself after her first illness; at least she dates her ailment from that time, and it had, no doubt, with occasional remissions, been going on up to the time when it reached its acme of intensity immediately before the operation.

The patient was much relieved. Defecation, which formerly had been extremely difficult and painful, was now comparatively easy. An enema, which she had the following day, passed up without difficulty, and there was no forcing back, such as was formerly experienced. The severe burning pain which had annoyed her so much materially abated, and the general symptoms gradually improved. A discharge of fluid continued for some time after this, together with an *uneasiness* (she stated she could hardly call it pain) in the left iliac region. A succession of blisters and a change to the seaside have done much to remove this; and upon the whole, she feels as strong and healthy as she ever did, and more so than she had been for some years past.

Regarding this operation, I would remark that the use of Dr A. Wood's syringe, in the manner above mentioned, is, so far as I am aware, novel. I have never heard of its having been before applied in the capacity of an exploring needle. Its great superiority, however, over the ordinary needle is sufficiently apparent, when fluid contents require to be examined, as a considerable quantity can thus be obtained for examination. Small cysts, such as ganglia, etc., might also be emptied in this way, and afterwards, if it was thought necessary, injected with iodine.

Part Second.

REVIEWS.

On Human Entozoa: comprising the Description of the Different Species of Worms found in the Intestines and other parts of the Human Body; and the Pathology and Treatment of the various Affections produced by their presence. By WM. ABBOTTS SMITH, M.D., M.R.C.P. Lond., Senior Physician to the Metropolitan Free Hospital, etc. London: H. K. Lewis: 1863.

THE department of helminthology has made great advances in our own day. The mode of origin and development of the intestinal entozoa appeared, even a few years ago, so obscure, that nothing but

spontaneous generation was supposed capable of accounting for it. The difficulty consisted in this, that while well-formed and perfect animals, swarming with ova, were found in the intestines, it was all but certain that they were not propagated in that situation, while nothing analogous to them was found in the external world. The admirable researches of Steenstrup established what is known as alternating generation, by which is meant a process of reproduction, whereby a parent produces an offspring which in no way resembles itself, but which itself brings forth a progeny which returns in its form and nature to the parent animal; so that the original or maternal animal does not meet with its resemblance in its own brood, but in its descendants of the second, third, or other determinate generation. This removed one great source of difficulty; while the observations and experiments of Von Siebold, Küchenmeister, and others, applied this principle to an explanation of the generation of several of the entozoa. Much that was formerly mysterious is now plain; and it is a mere question of time and observation how soon the remaining obscurity shall be cleared up. The object of the work before us is to give, in a moderate compass, the results of the more recent investigations, together with practical observations on symptomatology and treatment.

It may be at once stated, that Dr Smith's book does not contain, and does not profess to contain, anything original; it is, in fact, little more than a translation of portions of Dr Davaine's "*Traité des Entozaires et des Maladies Vermineuses de l'homme et des animaux domestiques*;" and Dr Smith would have done better, and would have saved himself some unpleasantness, had he so described it in the title-page of his work. We do not for a moment accuse Dr Smith of any wish to deceive his readers as to the nature of his performance, but it would have been the more judicious course to have come forward as a translator and occasional annotator.

The work is divided into three parts; the first consists of a synopsis of the entozoa which are found in man, under the heads protozoa, cestodea, trematoda, nematoidea, and acanthotheca. The separate genera and species of these orders are described in concise but distinct terms. The second part treats of the pathology, symptomatology, and general treatment of the human entozoa, according as they affect the organs of respiration, the intestinal canal, serous cavities, or solid organs; whilst the third part is devoted to special therapeutics, treating of the various medicinal agents employed in the treatment of intestinal and other entozoa. This mode of division may in some cases save repetition, but we decidedly prefer an arrangement which places the treatment alongside of the pathology and symptomatology.

On the whole, we can recommend this work as one which, while not entering with anything like the minuteness of Küchenmeister into the details of helminthology, gives a fair and in general a correct view of the subject. Dr Smith would, however, have done

well had he incorporated into his book the later results arrived at since the publication of the treatise of Dr Davaine. For instance, in speaking of the *trichina spiralis*, the following passage occurs :

"According to the cases which have been hitherto published, it is evident that the presence of the *trichina* bears no relation to the age or sex of the individuals affected by it. Nothing definite is yet known respecting the causes and the conditions upon which the attacks of this parasite depend. Contrary to what might be expected, the persons in whom *trichinæ* have been found after death did not in the majority of cases complain of pain, or of any particular symptom which could be assigned to the presence of these worms ; their existence might consequently be unattended by serious results, at any rate for some time, as they are not reproduced in the muscular structure (owing to their not being provided with organs of reproduction), and as they always perish before they acquire very considerable dimensions. They leave behind them the cysts, in and around which cretaceous matter and particles of fat are deposited." This passage is, for the most part, a literal translation from Davaine, and though it might have been accepted as representing the actual state of knowledge when he wrote in 1859, it is certainly not true in 1863. Dr Smith, indeed, introduces the following sentence :—"In some few instances, sub-acute pain and feverishness have marked the invasion of *trichinæ*, but not to such an extent as to be decisively diagnostic of the affection. If the cause of the malady be suspected during the lifetime of the individual, a microscopic examination should be made of a portion of the muscular tissue. Until our knowledge of the manner in which the *trichina* is introduced into the body is more extended, the plan of treatment which ought to be adopted must be necessarily uncertain." And in a note, he alludes to the opinion of Leuckart and others, that the young *trichinæ* being introduced into the alimentary canal subsequently pierce its walls and finally reach the muscular tissue, as "highly hypothetical" and improbable. Whereas the experiments of Virchow, Leuckart, Zenker, and Turner, render it almost certain that this view is the correct one ; while several cases have been recorded in which death has resulted from the rapid development of *trichinæ*, which had been introduced into the system by the flesh of animals affected with the parasite.

We shall conclude, by giving an extract from the third portion of Dr Smith's work, in which he gives the results of his own experience with *santonine* :—

"*Santonine*, or *cinine*, as it is sometimes called, is a white, inodorous, and, when pure, almost tasteless powder ; very sparingly soluble in water, but readily dissolved in fatty oils. It has a slightly acid reaction, of which advantage has been taken in the manufacture of a series of salts, *santonates*, formed by its union with certain bases.

"For children, one to three grains would constitute a proper dose, and for adults, two to five grains administered twice daily ; the remedy may be repeated every third or fourth day, for one or more successive weeks, if necessary. It should be given in some oily vehicle, and none will be found more advantageous

than castor oil. If, for any reason, castor oil be unsuitable, the powdered santonine may be given on a piece of bread and butter, or in honey, some purgative, such as jalap, being ordered to be taken about three hours afterwards. When the *ascaris oxyuris* is the parasite with which the patient is troubled, some of the drug may be combined with an enema.

"I have, for some years past, employed santonine, both in hospital and private practice, in a considerable number of cases, from which I propose to give a summary of fifty, in order to show the value of that remedy.

"In twenty-eight of these cases the prevailing entozoon was the *ascaris oxyuris*, in seventeen the *tania solium*, and in five the *ascaris lumbricoides*. Of the total number of patients nineteen were cured after undergoing treatment for a duration of from one to three weeks, fifteen were much relieved, nine presented some improvement, and in the remaining seven no permanent good result was obtained.

"The relative efficacy of the medicine varies according to the species of parasite, the greatest degree of benefit being procurable in the cases of round-worm, next in tape-worm, and least in those of thread-worm; this comparison only holds good, however, when the santonine is administered by the mouth, for the cure effected by the use of enemata containing santonine is sometimes very speedy in cases of thread-worm."

The Diagnosis and Treatment of Diseases of Women. BY GRAILY HEWITT, M.D. London: Longman, Green, etc.: 1863.

WE are at a loss how to present this valuable work to our readers. It is not a systematic treatise, neither is it what is called a clinical work. A systematic work is the only one of much value to the medical student properly so called; it discusses each separate disease as a distinct thing, and therefore deals to some extent with abstractions. A clinical work is much esteemed by practitioners; it proposes to base all its conclusions upon facts observed, and for the most part recorded by the writer, and it deals with diseases not as abstractions or as series of phenomena supposed to occur alone in an otherwise healthy patient, but as they occurred in the writer's practice, simple, complicated, or anomalous, as the case may be. Dr Hewitt's work is not of either of these kinds; no diseases are fully described in it, and it contains no series of observations. It aims at taking up the symptoms and the physical phenomena of disease, and making these the subjects of the various chapters, describing all the variations of each symptom or physical condition in different diseases in its own chapter. We are not sure that this is an advantageous method of instructing readers, or of communicating to the profession a digested mass of knowledge. In the present case we must give the author credit for most laborious arrangement, for having produced a valuable, readable, and useful work, but we must add that we think another form of book would have done more justice to his own experience, learning, and judgment. It would have, in our opinion, been easy for Dr Hewitt, by an elaborate index of symptoms, to have secured to readers all the advantages of the form of work he has adopted. At the same time we recommend the book to all who have some experience in gynaecology as a

valuable volume, whereby they can reach in an unusual and interesting manner the views of a good author.

Perhaps it is to the form of this production that we should attribute our difficulty in understanding or sometimes in agreeing with our author, and the difficulty generally arises in pathological or physiological questions of great importance. As illustrations, we may mention his assertion that a regular placenta is not formed until near the fourth month of gestation (p. 70); his allusion to cases in which the whole uterus has been found enlarged and converted into a mass of an osseous hardness (p. 350); cases of abscess in the uterus from decomposition of a retained foetus; cases of abscess in the uterine wall, or between the uterus and its peritoneal covering (p. 351), etc., etc.

In his chapters on treatment, Dr Hewitt enters briefly into many methods which should not have been so rapidly sketched. He has, perhaps justly, a partiality for new methods, but he has not taken pains to place their claims to professional respect or disrespect on a sufficient basis. We think this is not a light matter. It is easy to propose new remedies and plans, and it is too much the fashion of the day. Most of them live their short existence in ephemeral publications. A work of the high character of that before us had better have omitted mention of some plans altogether than have so scantily estimated them as Dr Hewitt has done. Under this head we may mention the operation alleged to have been practised by Burns of cutting the pudic nerve; the operation of scraping by the curette of Recamier or otherwise; the operation of cupping the interior of the uterus, and several other curiosities. Dr Hewitt knows well that the most skilful surgeon has few tools; the most skilful physician few remedies. The comparatively ignorant and presumptuous have no difficulty in finding and in naming your disease; they overwhelm their patients with new diseases and new treatments. The philosophical, wise and prudent, always exhibit a manifest truthfulness, simplicity, order, and constancy, which the fickle and ignorant world scarcely knows how to value. Gynækological science has made many great steps of late years which cannot be undone. Among the steps or twitches of gynækological therapeutics, how many are destined to live as long as their authors? The great promoter of gynækological therapeutics is he who advances gynækological science; and such improvements generally, if not invariably, result in the abrogation or simplification of treatment. Including in our statement both the profession and the public, we may safely say that belief in remedies is in proportion to ignorance of disease and of nature. Towards diffusing sound knowledge of women's diseases, the work of Dr Hewitt will greatly contribute.

The chapters on tumours traceable into the pelvis, on ulcerations and flexions of the uterus, on derangements of menstruation, on pregnancy, and on ovariectomy, seem to us specially worthy of professional attention.

The Surgical Diseases of Children. By THOMAS BRYANT, F.R.C.S.
Being the Lettsomian Lectures for 1863. London: Churchill
and Sons: 1863.

It can hardly be expected that in the few hours devoted to the oral delivery of three lectures, a comprehensive view of a subject so large as the name of this book implies could be given. In a modest preface, Mr Bryant claims for his work the title only of contributions to the subject on which he treats. There is no doubt that till within the last few years the subject of diseases of children had not received the particular attention it deserved; for, though Astruc, Cheyne, Heberden, Hamilton, Dewees, Maunsell, and Evanson, besides many others, had written specially on the subject, the clinical instruction, such as the students of medicine obtain in hospitals, was comparatively neglected, and the junior practitioner had at first to grope his way, blindly prescribing for his young patient on the principle of its being (according to its age) a certain fractional part of an adult, the only difference in the prescriptions being a nicely graduated arithmetical proportion in the amount of the drugs exhibited.

No greater advance in guiding a sagacious treatment has been made than by its being clearly shown that in their rapidity, fatality if neglected, and amenability to treatment, children's diseases differ in many important respects from those of adults. With some such idea, doubtless, did the Council of the Medical Society of London depart from their usual custom, and this year, defining the subject for the Lettsomian Lectures, give the surgical diseases of children into the hands of Mr Bryant.

The first lecture commences by clearing the ground, showing the physiological difference which exists between the life of an *adult* in which the vital forces are employed mainly in maintaining the balance of his *developed* physical structure, and that of a *child* in which they are at once taxed and stimulated by the necessity of providing for its *growth* and *development*. It is then shown how disease in a part is generally active in proportion to the activity of the vital processes going on in health, and thus the rapidity of children's diseases is accounted for.

Mr Bryant then goes on to special defects and diseases, and, commencing with the subject of defective development, discusses harelip, its pathology, frequency, and treatment. Passing at once to the other extremity of the digestive canal, he gives a very full account of the malformations and deficiencies of the anus and rectum, with the operations required for their relief, acknowledging the immense value of Mr Curling's researches on the subject. Mr Bryant recommends the right groin as a position for opening the colon in preference to either Littre's in the left groin, or the operation known as Callisen's or Amussat's in the left loin.

The second lecture chiefly consists of a melange of rare and interesting cases of maldevelopments, of injuries of the air passages and lungs, and of diseases of the circulatory, urinary, and digestive systems.

The third and last derives its chief interest from the very philosophical distinction made between diseases of the bones and joints in children, and similar diseases in adults, depending on the manner of growth of the young bones from so many centres, each a distinct source of nutritive supply. This is of extreme practical importance, as bearing on the fact, that almost complete destruction by inflammation of the shaft of a long bone may occur in a child without the destruction of either of its joints, and with a good hope of the ultimate safety of the limb.

A very brief notice of one or two forms of tumours, simple and malignant, concludes this plain, modest, but very suggestive volume.

Mentone in its Medical Aspect. By JAMES LEWIS SIORDET,
M.B. Lond., etc., etc. London: Churchill: 1863.

MENTONE is undoubtedly one of the most favoured, if not the most favoured, of the health-resorts on the northern shores of the Mediterranean. Brought into notice only a few years ago, it annually attracts numerous wanderers in search of health, and already a small library of works regarding it has been published. Dr Siordet, who has benefited from its climate during the last two winters, undertakes in the little volume before us, to communicate, in the form of letters to a medical friend, information to intending visitors. We may at once state, that in a very limited space Dr Siordet has brought together much valuable information, and though the book may be read through in an hour, the invalid will gather from it many useful hints.

The following is Dr Siordet's opinion of the character of the climate of Mentone:—

"I hope to prove to you that Mentone offers most of the characteristics required to constitute a really good winter climate, viz., generally bright, sunshiny weather, allowing of daily exercise in the open air; a moderate proportion of rainy days, no very great amount of cold, a moderate daily range of temperature, and an almost complete exemption from winds from the north, north-east, and north-west, which are the coldest winds in Europe. Added to this is the important consideration that a cheerful influence cannot fail to be exerted on the minds of invalids by the beautiful scenery around us, with its refreshing, evergreen vegetation. There is one negative feature in the climate, which, in my opinion, ought to be held among its greatest advantages, namely, that no endemic disease whatever exists in the district; therefore persons who come here to get rid of one affection have not, as in so many other places of winter resort, to dread in exchange the accession of fevers, dysentery, or diarrhoea."

But, in connexion with this, it is very essential to bear in mind another statement, which enunciates a truth too apt to be forgotten by visitors to southern climates:—

"I have found in Mentone a very pleasant, quiet country home, where the rest and pure air, so necessary to invalids, may be fully enjoyed; and in my own case I have experienced great benefit from my sojourning here, being now, comparatively speaking, restored to health. But climate alone has not effected this; I have never relaxed for a moment from all the care and precautions I should have taken had I remained in England. In fact, I look upon a mild winter climate as an adjuvant merely in the treatment of most diseases; the invalid being by its means placed in more favourable hygienic conditions, he can almost daily enjoy sunshine, fresh air, and exercise, whereby it is probable that digestion will be improved, sleep rendered more sound and refreshing, and the strength generally recruited. I consider it important to impress on the invalids and their friends the necessity of great precautions, as they are too apt to think that the mere fact of their being in a southern climate ought to be fully sufficient to restore them to health, and that they may, whilst here, do with impunity whatever they please. I have unfortunately too often witnessed the ill effects of such inconsiderate behaviour; even persons in good health are apt to suffer unless they take some amount of care during the periods of bad weather which occasionally occur at Mentone as elsewhere."

With regard to the special diseases in which the climate of Mentone is likely to prove useful, pulmonary consumption must be put in the first place. On the possibility of the cure of phthisis, Dr SiorDET makes some judicious though perhaps rather discouraging observations; and the result of his experience is to recommend a change of climate to those only in whom the disease has not gone beyond the first stage, or in whom, if the second or third stage of the disease has been attained, a small portion of one lung only has been affected. Where the disease has assumed an active form, the necessary annoyances of travelling are likely to do more harm than the milder climate to do good.

Cases of scrofula without marked pulmonary lesion generally do well, and chronic bronchitis is usually favourably influenced; chronic rheumatism and gout are generally much benefited by the mild climate and agreeable temperature; while persons suffering from chronic diarrhoea often recover,—a circumstance in great part attributable to the astringent properties of the hard water. On the other hand, neuralgia, especially of the head and face, is not usually alleviated; indeed the sufferings occasioned by it seem rather to be increased, particularly at those times when the weather becomes unsettled.

The last letter is headed "Hints to Invalids," and contains useful information on a variety of points. An appendix, devoted to the climatology of Mentone, concludes the volume.

Part Third.

PERISCOPE.

PRACTICE OF MEDICINE.

ON TYPHOID FEVER. BY M. BEAU.

AMONG the symptoms of this disease to which Dr Beau directs special attention, is a painful sensation produced by pressure or percussion over the whole of the hepatic region, and which continues from the commencement to the termination of the disease. This diagnostic sign, of which the importance in another point of view will become apparent further on, has been very seldom absent in the present epidemic. According to Dr Beau, the characteristic eruption consists of lenticular spots which this year have been very abundant. There is another eruption of blue patches, not elevated like the former above the skin, and met with especially in the inguinal regions, and the upper part of the thighs. In the third place, there are sudamina; but these, according to Dr Beau, are a critical eruption of the febrile state, and are not specially connected with typhoid fever. Nevertheless, it is important as indicating that the fever has existed at least ten days. Finally, there is a fourth kind of eruption pointed out for the first time by M. Piörry, and situated on the buttocks. It consists of pimples of the size of hemp seed, surmounted by a little black point where pus forms, which ulcerate, and which, according to M. Beau, are due to the contact with the fluid stools of this fever. M. Beau considers the duration of typhoid fever to be twenty-one days; in some cases, however, it does not last more than fourteen. This statement scarcely accords with the opinion of some writers who speak of typhoid fever lasting for forty or fifty days. In such cases, according to M. Beau, there is not a single fever, but a relapse during convalescence, constituting in reality two fevers. According to M. Beau, typhoid fever is contagious; some of the students who suffer from it receive the contagion in the hospitals.

Numerous hypotheses have been made regarding the cause of typhoid fever; according to M. Beau we must revert to the opinion of Galen, and attribute to the bile the chief share in its causation. It was while house-physician under M. Larrogue that M. Beau first occupied himself with this question. M. Larrogue gave tartar-emetic to his patients with typhoid fever, because, said he, the bile flowed into the intestines, produced ulceration there, and infected the blood. M. Beau accepted this doctrine and this practice with a certain modification. It might be objected to the opinion of M. Larrogue, that the bile in the state of health neither produced ulcers nor infected the blood. If, says M. Beau, it is different in typhoid fever, it is because the bile is altered, and its secreting organ in an abnormal state. The diagnostic sign mentioned above comes in to support this assertion. Pressure or percussion over the liver causes pain there. The liver is then affected in typhoid fevers, and as its function is to make bile out of the blood, the bile is altered, and the hepatic fibrine furnished to the blood diminishing in quantity, the latter becomes more fluid, and hæmorrhages occur, at the head of which must be placed epistaxis.

The treatment of typhoid fever employed by M. Beau flows from this view of its etiology. Until we can discover how to act upon the liver itself, the first indication is to expel the bile as soon as it is secreted and poured into the digestive tube. M. Beau commences with an emetic consisting of fifteen grains of ipecacuanha, and a grain and a-half of tartar-emetic; this is divided into two

doses, which are taken with an interval of ten minutes. He then employs purgatives; but to obtain their good effect, it is necessary that purgation be free, amounting to ten, fifteen, twenty stools per day. The practitioner will try various purgatives until he find out that which is most suitable for his patient. This evacuant method, according to M. Beau, is applicable to all the forms of typhoid fever. Next in importance come cold lotions, which are not only agreeable, but useful when the heat is great. M. Beau has his patients laid naked upon a mattress, and two or three persons sponge them rapidly with cold water. The patient is immediately dried and replaced in bed. With regard to alimentation, M. Beau is of opinion, that to give food too early, paves the way for a relapse, and favours the occurrence of complications. Accordingly, when under the influence of evacuates, the vehemence of the fever has abated, and when about the eighth or tenth day the patient wishes some food, M. Beau does not accede to his request. At most, to deceive the patient, he gives him some very diluted beef tea. It is not until about the twenty-first day that M. Beau begins to feed his patients. The only exception made is in the case of pregnant women. If a relapse takes place, M. Beau reverts to the ipecacuanha and antimonial mixture, but now its action is much less efficacious than at first. As to the complications of typhoid fever, they demand special treatment. When intestinal hemorrhage occurs, the use of purgatives is contra-indicated, and the treatment becomes mainly expectant. In the case of pulmonary complications, M. Beau does not draw blood, but trusts to dry cupping and derivatives. Bed-sores only call for great attention to the cleanliness of the patient. Finally, if, as the result of a perforation, peritonitis menace the life of the patient, M. Beau does as Chomel did; he prescribes opium in full doses to diminish the peristaltic action of the intestines, and to favour the formation of adhesions which may limit the effusion. Though the opinions of M. Beau may admit of discussion, his statistics show favourable results; and when a doctrine shows good practical results, it merits serious attention.—*Journal de Médecine et de Chirurgie pratiques.*

[We have not laid M. Beau's opinions before our readers because we agree with his pathology or approve of his practice; on the contrary, we consider the severe purging he recommends to be highly dangerous. But we thought that the above extract might be interesting as expressing the matured opinions of one of the leading physicians of the Parisian hospitals.—ED. ED. MED. JOUR.]

ON OZENA AND ITS TREATMENT. BY PROFESSOR TROUSSEAU.

THE horrible fetor of the breath which constitutes ozæna is an infirmity so odious and unfortunately so common, that the physician ought, from the very commencement of his career, to make himself acquainted with the causes and treatment of this condition. In the first place, we must be careful not to confound ozæna depending upon the condition of the nasal fossæ with the fetor of the breath caused by some affection of the mouth or throat. It is not, however, always easy to avoid error. The simplest diagnostic means is to direct the patient to close his mouth and nose alternately during expiration; it is then generally easy to determine the source of the fetor. This method may, however, prove insufficient, because the vitiated secretions of the nasal fossæ may fall back into the pharynx and communicate their disagreeable odour to the air which passes through that cavity. The physician, however, who has seen a few cases of the kind, will have no difficulty in recognising the condition in question, for the odour is quite peculiar, so much so, as scarcely to admit the possibility of mistake. This specific odour is, however, chiefly associated with that form of ozæna which is called *constitutional*, and which is specially associated with the serofulous or herpetic diathesis.

All the secretions which are in contact with the air become altered in their composition if they are not renewed, and this alteration is more considerable in some persons in virtue of conditions which it is not easy to indicate, but which depend as much perhaps on the quality of the secretion at the moment it is formed, as on the special nature of the secreting organ. The nasal secre-

tions in some persons alter with great rapidity, and contract an extreme fetor which will not be observed in other persons though much less particular as to the details of the toilet. Ozœna sometimes depends upon this cause; when the nostrils have been cleared of their secretions, the breath is pure; a few hours later it becomes foul if the matters are allowed to accumulate in the nasal fossæ. The remedy for this condition is not far to seek; it consists in using the pocket-handkerchief frequently, and cleansing the nose thoroughly.

In some persons the secretions of the mucous membranes in the normal condition have, like that of the skin, a remarkable fetor; if these parts are attacked with inflammation, acute, or chronic, the fetor becomes much exaggerated; you may be often struck, for example, with the foul odour of a gonorrhœal discharge. This fetor persists as long as the inflammation is acute, and indeed, sometimes persists after it has become chronic. Thus, in some persons, as soon as they contract a coryza, the secretions from the nostrils become of very offensive odour.

The ozœna called *constitutional* is rarely observed during infancy, even although there should exist at birth some of the anatomical conditions which lead almost certainly to it. It is rare that the condition is established before the fourth or fifth year; it increases towards puberty, continues during adult life, and diminishes but does not disappear completely in old age. This form is distinguished by a fetor peculiar to itself; the nasal secretions are usually purulent, sometimes they dry up and form crusts which mould themselves to the interior of the nostrils, and there is usually a little bleeding when they are discharged. The purulent discharge is often very abundant, though it is right to mention that it is not in these cases that the odour is most disagreeable unless the ozœna be connected with a disease of the antrum, in which the matter remains, and which is discharged in streams on certain movements of the patient. Almost always on examining the nasal fossæ by means of a small speculum, the mucous membrane will be found reddened. Ozœna has sometimes been ascribed to contraction of the nostrils due to depression of the root of the nose, but there are many persons in whom the nostrils are extremely narrow, and yet in whom the nasal secretions have never a disagreeable odour.

In other cases, rarer no doubt, the nasal secretions appear quite the same as in other people, and at the same time there is no indication of any inflammatory affection, acute or chronic. Under such circumstances, where there is no inflammation of the pituitary membrane, no necrosis of the bones of the nose; where the individual appears to be in perfect health, where the nasal secretions have a peculiar fetor, just as the perspiration from the feet has in some people, we are forced to admit the existence of a *constitutional ozœna*. Next to this form we must range that which depends upon a herpetic diathesis, and which is generally associated with scrofulous ophthalmia, and swelling of the upper lip. Not that every eczematous affection of the nostrils will occasion ozœna, but just as in some persons eczema of the feet, the vulva, etc., produces secretions of a revolting odour, so in some individuals affected with eczema of the mucous membrane there is a discharge of a most fetid character.

Of all the causes of ozœna the most frequent is certainly syphilis. In constitutional syphilis coryza is very frequent; although in the great majority of persons it does not give rise to fetor of breath, it may do so, just as eczema and scrofula in certain persons. Syphilitic ozœna is also important in this respect, that more than any other form it leads to ulcerations and necrosis. Necrosis, whether due to syphilis, to gunshot wounds, or to fractures, may lead to ozœna. The last condition to be mentioned is disease of the antrum. This account of the causes of ozœna is no doubt very imperfect; it was, however, necessary to premise it before passing to a consideration of the therapeutic means, by the aid of which we sometimes cure and often palliate this cruel infirmity.

In the first place, it must be understood that we can do little in the case of ozœna which depends upon necrosis of the bones. The dead bone will come away in whole or in part, and the odour will continue as long as any portion

of the dead bone remains. It is sufficient to cast a glance at the bones of the head to see how difficult the expulsion of certain portions must be. An ulceration, a necrosis of the walls of the antrum, or a chronic inflammation of the mucous membrane which lines it, will also produce an *ozæna*, for the cure of which we can do little, and in the greatest number of such cases surgery alone can intervene by penetrating the antrum from the upper row of teeth. In all cases where we can attack the cause of the inflammation of the pituitary membrane, and where there are as yet no osseous lesions, the cure is easy; thus in syphilitic coryza without ulceration, mercurials, or iodide of potassium, will soon remove this condition. But where we have to do with a herpetic *ozæna* we have no longer any specific remedies, and the condition is often incurable. By means of arsenical or sulphurous preparations, or iodine, we may do some little good, but it is to topical remedies we must chiefly trust. It is still more difficult to contend against the strumous diathesis, and though we may produce some modification of the constitution, by placing the patient in favourable hygienic conditions, and administering some of the ordinary remedies, we must reckon almost exclusively upon these agents which address themselves directly to the affected mucous membrane.

Powders inhaled in the same way as snuff, the direct application of caustic to ulcerated points, injections of different kinds, are the means which have proved most effectual. Not that a cure is easy, far from it, or that it can be obtained in a short time; but, however imperfect the method, we arrive occasionally at relatively good results, which we are glad to have obtained. The following are the powders I generally employ:—

1. Subnitrate of bismuth; Venetian tale, of each half an ounce.
2. Chlorate of potash, 30 grains; powdered sugar, half an ounce.
3. White precipitate, 5 grains; powdered sugar, half an ounce.
4. Red precipitate, 5 grains; powdered sugar, half an ounce.

An essential precaution is to clear out, in the first instance, the nasal fossæ, by sniffing up tepid or cold water, so as to remove any crusts or mucous secretions. It is to the mercurial powders I have recourse in the first instance. The patient should inspire vigorously a pinch by each nostril, and this should be repeated twice or thrice a-day according to the amount of irritation produced. Physicians are not in general sufficiently alive to the irritating action of the red or white precipitate; as they are apt to create great irritation, only a very small number of inspirations should be prescribed daily, and only for a few days. The immediate effect of these powders is occasionally most remarkable, the fetor sometimes disappearing, temporarily it is true, in the course of a few hours.

If we must be cautious in the employment of mercurials, there is no such necessity in the case of the mixture of bismuth and tale, which the patient may inhale as often as he pleases, and which seems to have a really beneficial influence. The chlorate of potash is also a modifier of the mucous membrane, and has the advantage, that, like the mercurials, it causes the odour to disappear whilst it is being employed.

In adults, where obedience can be counted upon, the inspiration of powders, though by no means satisfactory, renders real service; in children they are almost useless, and we must have recourse to injections, which will then be the almost exclusive mode of treatment, whilst in adults they are merely subsidiary.

1. Phagedenic water (yellow wash, more or less diluted).
2. Chlorate of potash, 60 grains; distilled water, 7 ounces.
3. Nitrate of silver, 1 grain; distilled water, 3½ ounces.
4. Sulphate of copper, or sulphate of zinc, 1 grain; distilled water, 3½ ounces.

It must be remembered that the pituitary mucous membrane has a much greater sensibility than is generally supposed, and that even very diluted solutions are borne with difficulty. This sensibility is soon blunted, but the solution should never be much stronger than the above.

The injections should be practised two, three, or four times a-day for several successive days, then recourse may be had to the powders, and so on alter-

nately, care being taken to regulate their strength according to the irritation produced on the mucous membrane, and the influence exerted on the disease. The remedies must often be continued for months without interruption, and when the fetor has been absent for six weeks or a month, the severity of the treatment may be relaxed.

There is an important practical point to be alluded to. It is generally noticed that at the menstrual period the ozæna augments; and that this also occurs at any time when an inflammation of the pituitary membrane supervenes. Accordingly, under these circumstances, the treatment must be resumed, even if the patient had appeared to be perfectly cured.

Although topical remedies are the most important, we must not neglect general treatment. Cod-liver oil continued for a long time is often useful. Tincture of iodine, given at meal times, in doses of from 5 to 15 drops, seems often to have a good effect. Arsenical preparations persevered in for a length of time seem often to assist the topical medication.

In the treatment of syphilitic ozæna, mercury and iodide of potassium hold the first rank. As to necrosis, disease of the antrum, etc., their treatment is surgical.

I cannot conclude without repeating that this most disagreeable complaint is one of the most difficult to cure, but that it is also one of those which may be best palliated, if we can be assured of the cleanliness, the docility, and the patience of the sufferer, provided that this patience be only equalled by that of the physician.—*Bulletin Général de Therapeutique.*

ON THE TREATMENT OF HOOPING-COUGH BY ERGOT OF RYE.

BY DR GRIEPENKERL.

A BOY, six years of age, under the care of Dr Griepenkerl, in 1856, had had hooping-cough for a fortnight, when he was attacked by the convulsive symptoms of ergotism, which was at that time epidemic in the commune of Lutter. From the first appearance of these symptoms the fits of coughing ceased, and were replaced by simple whistling inspirations. At the end of a few days, when the child was cured of the ergotism, he was found at the same time cured of the hooping-cough, which had therefore lasted a much shorter time than usual. Starting from this fact, M. Griepenkerl administered ergot of rye to five children suffering from hooping-cough, four of whom, a year old, had been affected for three or four weeks, and the fifth, three years old, had been suffering for a year. In all a cure was nearly accomplished at the end of eight days of treatment. Later, in 1861, an epidemic of hooping-cough offered to the author a vast field of observation, and his experience now comprehends more than two hundred facts. The results of this investigation appear to vindicate to the ergot of rye an important place among the remedial means in hooping-cough. The failures in Dr Griepenkerl's hands were few, and they ought to be attributed to the employment of ergot of bad quality. The following formula has been definitively adopted by the author as the most suitable for giving a stable compound, and one divested of the irritant properties which powdered ergot possess.

Ergot in coarse powder, 20 to 30 grains, to be boiled for half an hour in water with an ounce of isinglass; to this an ounce and a half of powdered white sugar is to be added.

Dose, a teaspoonful every two hours for a child from five to seven years old. For younger children the quantity of ergot is to be reduced to 10 or 15 grains for the same quantity of syrup. It is necessary, during the whole of the treatment, to avoid scrupulously all articles of food which contain tannin.

Dr Griepenkerl recommends that this treatment should not be commenced until the beginning of the third week of the disease, and after all complications have been got rid of. He has remarked that the paroxysms are often aggravated during the first days of the employment of the ergot, but at the end of from five to ten days they diminish in frequency, and disappear the more rapidly in proportion as there is less concomitant pulmonary catarrh. The

latter is in no respect modified by the ergot. The syrup of ergot has never been employed by Dr Griepengerl for more than fifteen consecutive days; he suspends its administration at the end of that time, but resumes it in a fortnight, if the cough has not been sufficiently modified. He has never seen this treatment give rise to the symptoms of ergotism.—*Deutsche Klinik*.

ON A CASE OF TRICHINAL INFECTION. BY PROFESSOR LANGENBECK.

WHILE removing a canceroid growth from the neck of a patient arrived from the country, Dr Langenbeck remarked that the platysma presented an unusual appearance. Microscopic examination showed that it contained an immense number of dead trichinae, contained in calcified capsules. Inquiry was made as to the circumstances under which the immigration had probably occurred, and the following was the result:—In 1845, a commission composed of eight persons went to a town in the district of Lansitz to inspect the schools. A collation composed of ham, sausages, cheese, roast veal, and white wine having been served to the commission, only seven of the members partook of it, the eighth was absent at the time, and only took a glass of red wine at the dessert. Three or four days afterwards the seven who had partaken of refreshments were seized with intense diarrhoea, pain in the neck, and oedema of the face and extremities. In four the attack proved fatal; and the three others, including the individual on whom M. Langenbeck had operated, only recovered after a tedious illness. Rumours of poisoning spread about, as may readily be imagined. An investigation was ordered, but the result was negative; the public, however, did not so readily get quit of their suspicions, and the landlord of the hotel where the collation had been served soon found himself without customers, and was obliged to emigrate. Facts of this nature are well worthy the attention of medical jurists.—*Deutsche Klinik*.

PARALYSIS OF THE FACIAL NERVE AT THE COMMENCEMENT OF SYPHILIS.

AMONG the numerous accidents which accompany syphilis, there is one somewhat curious, little known, and seldom observed by the authors who have studied and described the disease, we mean paralysis of the facial nerve at the commencement of syphilis. The following is a remarkable example, communicated to us by Dr P. Marty, who met with it at the dispensary of Dr E. Langlebert.

M. X., twenty-five years of age, of a lymphatic and bilious temperament, usually enjoyed good health. Till the present attack had never had any syphilitic ailment. About the fifteenth of July he had a suspicious connexion, and towards the end of the month the following symptoms made their appearance:—On the penis a very small white point, which enlarged rapidly, and assumed all the characters of the infecting chancre; in the corresponding groin the glands became affected with a hard, indolent enlargement. About five weeks after the appearance of the chancre, secondary symptoms showed themselves. Syphilitic roseola set in and ran its ordinary course. It commenced on the trunk, and the patches, at first red, became greyish and brownish. The eruption was trifling, and lasted barely three weeks or a month. The chancre at this time had not entirely disappeared, when the patient was astonished to find that he could not close his right eye; he looked into a mirror, he tried to speak, and his mouth made the grimace characteristic of facial paralysis. Next day he presented himself at the dispensary, when the following was his condition: all the parts of the face which received branches from the right facial nerve were completely paralyzed. If the patient was asked to knit the brow, the left side alone was wrinkled. The loss of movements, in fact, was almost exactly what is described by authors as the result of this paralysis. But the orbicularis palpebrarum no longer contracting, the eye remained open, and the lower eyelid was turned a little outwards. When the patient was asked to close his eyes, the eyelids of the right eye resting immovable, the right superior rectus in contracting made the eye turn upon itself, and concealed not only the pupil but the entire cornea under the upper lid. In this patient there was no

trace of irritation; his eye always appeared sufficiently lubricated without there being epiphora. The nostril no longer dilated during the respiratory movements: it was a little retracted and drawn from the healthy side. The cheek of the affected side was flaccid: finally the patient could neither whistle, nor pronounce certain vowels or labial consonants.

As to the sense of taste, nothing particular was discovered. It is known, however, that an alteration of this sense has often been observed, and that M. Duchenne, of Boulogne, has, by a series of experiments, demonstrated that it is very frequent.

In this case the paralysis could only be ascribed to the syphilitic affection; there was no traumatic cause, no exposure to cold, no cerebral hæmorrhage, and the most remarkable fact was that the paralysis had shown itself at the commencement of the secondary symptoms. Everybody knows that paralysis of the face is observed in the syphilitic, but it is usually during the tertiary period, when exostoses, having become developed in the canal of Fallopius, compress the facial nerve. In such cases also the paralysis does not come on suddenly, as in the above observation; the process of the affection is slow, and some time is required before the phenomena above described become apparent. The treatment employed by Dr Langlebert consisted of small doses of mercury, internally, and mercurial frictions over the region of the parotid; under this treatment, combined with the use of galvanism, a marked improvement has taken place, and everything leads to the expectation of a speedy cure.—*Gazette des Hôpitaux*.

PRECAUTIONS TO BE TAKEN TO PREVENT THE TRANSMISSION OF SYPHILIS BY VACCINATION.

THE sudden and unexplained conversion of M. Ricord to the doctrine of vaccinal syphilis has not carried us away. We shall, before giving in our adhesion to the new doctrine, wait for authentic facts of a real scientific importance, for this mode of infection undoubtedly compromises, in the gravest manner, the value of vaccination. It cannot, however, be denied that the doctrine of vaccinal syphilis makes sensible progress; that it counts among its supporters, eminent clinical physicians and specialists of the highest merit, and we shall, at present, reproduce from the Medical Gazette of Lyons some remarks by M. Diday upon this subject. In the first place, says M. Diday, if you have any reason to suppose that there is a trace of syphilis in the child who has been vaccinated, or in its immediate relatives, you should take no lymph from such a subject. It is, then, necessary to know whether the first child has syphilis, and to ascertain this we must look for the traces of it in the parts most commonly affected, such as the genito-anal region, the commissures of the lips, the scalp, the folds of the skin within the thighs, &c. No matter how normal the vaccine vesicle appeared, M. Diday would not take lymph from it if the child's nose was habitually stuffed, if its upper incisor teeth were notched on their free border, or if the palmar and plantar epidermis did not present its ordinary resistance and coloration. The physician at the same time, without making a special examination, will look closely to the state of health of the father, mother, and nurse of the infant, and of its brothers and sisters. M. Diday then supposes the case that the child vaccinated, previously quite healthy, should have contracted syphilis by its vaccination. Under these circumstances the lesion will be primary, a chancre which will develop itself at the place of vaccination. But this chancre, according to the known law of its evolution, will scarcely appear before the cicatrization of the vaccine pustule; or, according to the observations of M. Lecoq, from the fourth day the progress of the vaccine vesicle will be irregular, and in place of a normal pustule, there will be an umbilicated pustule, speedily becoming covered with a thick crust. Accordingly M. Diday concludes that it is necessary, 1st, To avoid taking the matter from a pustule of which the period of suppuration, though it has offered nothing else unusual, has extended beyond the tenth day, for then there is reason to fear that a chancre exists. 2d, To avoid taking matter from a pustule which

has offered any irregularity. The next thing is to examine the child to be vaccinated, for every subject vaccinated is called upon to propagate vaccination, and if the pustule contains a germ of syphilis it may be propagated to an entire population; as to infants which have the appearance of being healthy, but in whom there is the possibility of hereditary syphilis, M. Diday recommends that they should not be vaccinated till they are three months old, for it appears from the statements of this observer that, of 158 children born with the forms of hereditary syphilis, the specific symptoms manifested themselves in 146 before the third month, in 12 after that period. This does not show that if three months have elapsed in a suspected infant without the appearance of symptoms, there will be an absolute immunity, but merely that there is a sufficient probability of their non-occurrence to warrant his vaccination.—*Journal de Médecine et de Chirurgie pratiques.*

ON SYPHILITIC INOCULATION BY VACCINATION. BY DR ADDE-MARGRAS.

DR MARGRAS maintains that it is necessary to vaccinate with only the pus of the pustule, and that we must be cautious to have no admixture of the blood of the individual with the vaccine virus. If the operation is executed with these precautions there is no danger. The vaccine virus will not affect the infant, but the blood of an infected subject can give rise to syphilis. Vaccine matter taken from no matter what subject (though the more vigorous the better) has always the same preservative power, and can no more engender syphilis than syphilis can engender vaccinia. While admitting that it is indubitable that syphilis can be transmitted by vaccination, the result must be attributed, not to the vaccine matter, but to the mode of vaccination, either that blood was mixed with the lymph, or that the instrument had been in some way contaminated. This opinion of Dr Adde-Margras is not peculiar to himself, Mr Barber (of Stamford), Valler in Germany; Palizzari and Borgioni in Italy; and Viennois in France; have, since 1859, instituted experiments to determine whether the blood of the syphilitic transmitted syphilis; and after some conclusive experiments they believe themselves justified in affirming that the inoculation of syphilitic vaccinia is to be attributed to the admixture of blood with the pus or lymph of the vaccine pustule.—*Gazette des Hôpitaux.*

Part Fourth.

MEDICAL NEWS.

THE REQUIREMENTS FOR THE PROPER STUDY OF MEDICINE, BEING THE INTRODUCTORY ADDRESS DELIVERED AT THE OPENING OF THE MEDICAL SCHOOL, FOR THE SESSION 1863-64, BY J. WARBURTON BEGRIE, M.D.

GENTLEMEN,—Different as the individual circumstances may be in which you are placed, your presence in this hall, and at this time, entitles me to consider the great majority of my hearers as similarly situated in one most important particular—you are Students of Medicine. The period of your studies is no doubt various; to some whom I now address, this class-room is a familiar object, others find themselves here to-day for the first time. Having, however, embraced Medicine as the profession of your choice, you are in this respect at one: it is a similar object which attracts you here.

Let me then, in fulfilment of the duty I have this day undertaken, invite your attention to the characteristics and advantages which should be possessed

by those who would study medicine aright; and in doing so, to some few particulars in connexion with the history of the profession, which cannot, I think, fail to be of interest to you who have either lately begun, or are now about to commence, your career as students. It were no uninteresting task to inquire, what are the circumstances which lead to the adoption of a particular profession by different individuals? and the interest of such inquiry would be heightened by noticing the causes which in special cases have appeared to contribute to subsequent success or failure. That in many instances the original choice of a profession, if not wholly fortuitous, is at all events largely determined by some accidental circumstance, does not admit of doubt. Not unfrequently the person chiefly interested has very little indeed to say in the selection; it is made for him, and not by him. We have, however, the satisfaction of knowing that some for whom the profession of medicine has been thus chosen, have risen to deserved eminence, and, indeed, to pre-eminence in it. There is the best authority for our giving credit to the ordinarily received statement regarding the renowned Greek physician Galen, whose voluminous works have exerted as important an influence on the progress of medical science, as those of any author in ancient or modern times. It was by the mere accident of a dream that Nicon, his father, was led to change the destined pursuit of Galen's life from philosophy to medicine. Thus fortuitously was secured for our profession one of the greatest names of which we have to boast. At an earlier period by some hundreds of years than that when Galen flourished, the profession of medicine was, as a general rule, transmitted from father to son. This was the case in the family of the most illustrious by far of the Greek physicians,—Hippocrates. Heraclides, his father, Thessalus and Dracon, his sons, as well as Polybus, his son-in-law, were all physicians; and not only so, but, as is familiar to us also in modern times, the profession in that family continued to descend in the direct hereditary line for several successive generations. But whether spontaneously embraced or fortuitously chosen, there can be no question that, in order to attain eminence, or what is of more consequence, to achieve usefulness, in such a profession as medicine, certain distinctive qualities are essentially requisite in the individual, and ought to be possessed by all those who are endeavouring to prepare themselves for its exercise. Evidently deeply impressed with the gravity of medicine as a profession, and the responsibility connected with its choice, the author of one of the works in the Hippocratic collection, known as **NOMOS**, *Lex*, the Law, not unreasonably supposed by some to have been the Father of Medicine himself, has in admirable language indicated what those advantages are which the individual anxious to arrive at a true or thorough knowledge of medicine should possess. "He who would acquire an intimate acquaintance with medicine must have a natural disposition, instruction with a favourable position for its reception, early tuition, love of labour, and leisure or time to devote to the study."¹ Let me ask your attention to these particulars a little in detail, and the import of certain of the terms employed will be found well worthy of notice. At the outset, then, it is held essential for the acquirement of a satisfactory knowledge of medicine that the individual should be possessed of a natural disposition towards it. The Greek word *φύσις*, thus rendered, also signifies natural ability, and implies, just as the Latin *Natura*, by which it is expressed, inborn taste, a natural bent or inclination. Who can doubt the truth of this assertion? If it be the generally received opinion in regard to all profes-

¹ *Κεῖν γὰρ ὅστις μίλλιν ἰατρικῆς ἔχουσιν ἀτρικίως ἀρμόζεσθαι τῷδ' ἐμὶν ἐπ' ἡβόλῳ γινέσθαι· φύσις· διδασκαλίης· τόπου εὐφύιης· παιδαγωγίης· φιλοπονήης· χρόνου.* Hippocratis et Aliorum Medicorum Veterum Reliquiæ. Edidit F. L. Ermerinus.

sions, that the highest success cannot possibly be attained without a hearty devotion to them, very specially may this be affirmed of medicine. It is true of the study of medicine, and likewise of its practice as a profession. Granted that many, indeed, all of the subjects of study included in a medical curriculum are in themselves most interesting, and such as in not a few instances completely absorb the attention of the students, still it must be admitted that the existence of the natural disposition, the *φύσις* is really necessary in order that the fundamental knowledge be attained. Anatomy, without the taste for its study, will soon cease to be interesting. Acquaintance with the bones will not have been made before the student is wearied, and quite ready to abandon its pursuit for that of something else, which to him is *κατὰ φύσιν*.—that is, naturally much more agreeable. The same remark holds true of chemistry, of botany, of physiology, in fact of all the different branches of medical knowledge. Unless possessed of a natural inclination or bent towards their study, it will be miserably forced work at best, and in the end the individual who has thus attempted to master them will find that the sum of his knowledge is very small indeed. The taste for the study which is thus referred to, is spoken of as inborn, natural to the individual; but it were a great mistake to suppose that although indigenous, it may not be greatly improved, largely increased, and strengthened by cultivation. Thus, indeed, may an inclination for the study of any one of the branches of knowledge already named, or of others included in the professional education you have to follow, which at the first has existed in only a limited degree, become quickened; and possibly, lest it prove too absorbing in its demands, may at length require to be rather checked than encouraged. True of the study of medicine, what has been said holds good likewise of the practice of medicine in its highest aspect, and although many of you are only now on the threshold of the former, you cannot be too early casting your vision forward to the latter. In the practice of medicine as an ennobling profession, there must be the *φύσις*. Without the natural disposition with the fruits it yields, what is there either to stimulate or to encourage? Ours assuredly is not a calling which the man ambitious of acquiring wealth or even great worldly distinction should embrace; the honours and rewards medicine holds out are not such as usually offer any temptation to those who seek these for their own sake; besides the arduous nature of it, itself repels many who might otherwise feel some attraction towards it. Nevertheless, it may without hesitation be affirmed, that the profession of medicine properly discharged affords as much real happiness to its cultivators as any other, it being always held in remembrance that the enjoyment of such happiness as is here referred to, is only consistent with the being personally deserving of it. “Est demum vera felicitas, felicitate dignum videri.” Be very jealous, Gentlemen, in the way you watch, and very careful in fostering this natural taste for medicine, which I shall assume you all possess. Do not, I beseech you, now that you are fairly entered on your professional studies, trifle with it; let no pursuit or pleasure, however innocent in itself, usurp the place in your esteem which of right now belongs to it. As you advance, the natural taste will increase, till at length it is found to have reached such goodly proportions that there need no longer be any fears entertained regarding your steadfast devotion to your profession.

I have already remarked that the Greek word rendered natural disposition, signifies likewise natural ability, while it is very probable that, in the passage of the Law already quoted, it was designed to have specially this latter signification. Thus considered, I would only further remark, that the expression directly points to the responsibility there must always exist in the selection of a profession.

There may be in an individual the natural ability, but not of that kind which is requisite for the proper study or practice of such a profession as medicine, and the duty is, no doubt, incumbent upon those chiefly interested, to determine as far as possible whether the ability as well as disposition or taste is in existence. Looking back upon my own somewhat limited experience, I am compelled to admit that I have known some students of medicine who possessed neither the natural ability nor the taste requisite in order to insure a useful, and therefore happy career; and some, again, who, having perhaps the taste in an inferior degree, wholly lacked the ability. By a few of those to whom I now refer, the discovery of this very serious want was made in due time. Medicine, by one who certainly had not the natural ability for its thorough prosecution, was abandoned, and happiness secured in the more congenial position of a military officer; while another, who only lacked the taste, presently adorns the pulpit. It were well that all who had made such discovery for themselves had thus acted; the profession, it must be confessed, contains not a few of whom it is to be regretted that they had not earlier learned the Hippocratic lesson, "When Nature opposes, everything else is vain."

Being assured of the possession of the natural disposition, the student seeks instruction. *Διδασκαλία*, Doctrina, the knowledge imparted by teaching, and this he endeavours to obtain in a position favourable for its acquirement. *Τόπος ἐϋφυής*—Locus studiis aptus. You see, in the advantage or acquirement thus specified, how modern practice largely conforms to ancient usage; but there is a remarkable variance, for whereas, in the early cultivation of medicine among the Greeks, and for ages thereafter, everything may be said to have depended on the teaching properly so-called of the art, the facilities afforded for private study in modern times, chiefly through the dissemination of learning by means of books, has placed the instruction or training by teachers in a less commanding, though it still occupies and will continue to do so, a very conspicuous place. What the student of every science will do well always to hold in remembrance is, that as far as he personally is concerned, the teaching of it is of secondary importance to the study. Properly speaking, he is only to be assisted by his teachers in the acquirement of the necessary knowledge; it is through his own exertions and well directed efforts that the student of medicine is to become thoroughly equipped for the profession or calling to which his after-life is to be devoted. We, however, as teachers, feel fully entitled to say that here you are offered as students a favourable position for the study of medicine. I speak of this position not in a narrowed or restricted, but in the fullest possible sense; not as the Extra-Academical or the University Medical School, but as both together, for it is in their union that Edinburgh is to be regarded in respect of instruction in medicine as "locus studiis aptus." We have the favourable position illustrated in its possession of our noble hospital, in which the clinical study of diseases can be efficiently carried on—in its laboratories for the furtherance of chemical inquiry—in its dissecting-rooms for the acquirement of anatomical knowledge—in its libraries; and, if I now mention such last, they are not in my opinion of least value, the admirable students' associations known as the Royal Medical and Hunterian Societies. On only one particular shall I claim the privilege of being a little more personal. We, as teachers, welcome back this day to our number the colleague who is to preside over the department of anatomy under this roof. In doing so, there are some of us, myself among the number, who cannot fail to call to remembrance that exactly twenty years ago we took our seats for the first time as students of medicine under his guidance and that of another teacher whose highly valued connexion with this

school continues, and must, we feel sure, greatly enhance the gratification Dr Handyside now experiences. Twenty years have wrought many changes, but none in the feelings of regard and respect we entertain for our former teacher and constant friend. Yes, twenty years have wrought many changes. I call this day likewise to remembrance those who, commencing their studies at the same time and under the same happy auspices, never brought them to a close; and others who, whether in the service of their country, of whom there have been several, or in the discharge of their professional duties in scenes of more than ordinary trial and severity, "have sunk untimely from the light of life into the darkness where there is neither work, nor device, nor knowledge."

"Claudite jam, Parcæ, nimum reserata sepulera;
Claudite : plus justo jam domus ista patet."

Having mentioned the necessary existence of an inborn taste, and the advantages connected with instruction, and a favourable position for the study of medicine, the author to whose important statement I have been directing your attention next insists on the value of early tuition, learning in childhood—*Παιδομαθία*, *Institutio a puero*. The precise meaning of this expression is not difficult to determine, when taken in connexion with a remarkable passage in the Republic of Plato. The divine philosopher, though not a physician, had devoted himself to the study of medicine, and has expressed the opinion that those are the best physicians who early in life apply themselves to it, and as much as possible familiarize themselves with diseases. Allusion has already been made to the circumstance of the profession being to a large extent hereditary in the time of Hippocrates. Born probably, and certainly reared, in one or other of the then famous temples of Health, the youthful aspirant after medical knowledge must, from a very early period of life, have been brought in contact with maladies and become conversant with the means then adopted for their cure. But while all this is no doubt true of the education of the early Greek physicians, and specially so of Hippocrates, and while its value as a plan or system of professional education cannot be gainsaid, it is well worthy of notice that, besides enjoying an extended course of medical study, they devoted themselves to the acquirement of a knowledge of the polite literature, and of the philosophy, of the age in which they lived. An education solely professional, Gentlemen, is not to be desired; rather has Galen expressed the desideratum when he says that every physician should be acquainted with something else than, or in addition to, physic. It might, perhaps, speciously be argued that such advice was no doubt very applicable to the cultivators of medicine in the second century, when the renowned physician of Pergamum himself flourished, for then an acquaintance with the whole theory and practice of medicine was of far from difficult attainment; but that now, when the boundaries of medicine have so exceedingly advanced, and may truly be said to enclose various more or less intimately correlated sciences, the student as well as the physician may be excused if they be ignorant of much, the knowledge of which is, however, expected in every well-educated gentleman. The day, I trust, is very far distant when such a view as this will become commonly adopted by or widely diffused among those who, in virtue of their peculiar position in the governing body of the profession, or in the councils of its colleges, have it in their power very easily and speedily to deprive medicine of that character as a liberal profession which happily it still enjoys, and which for many years it deserved in a measure superior perhaps to all rivals. The preliminary studies in which the student of medicine is required to engage, and more especially the cultivation of the dead languages, have, according to universally entertained opinion, a most power-

ful influence in quickening the intellect, in expanding the understanding, in preparing the mind for the fuller enjoyment and higher appreciation of those exercises in which it is to be engaged when the strictly professional studies are in progress. This, undoubtedly, is the main reason why such occupation as the study of Latin and Greek, and the cultivation of mathematics and the philosophies gives to the mind, will prove useful to him who has chosen medicine or other liberal calling as his profession. Another reason as respects the former of these pursuits, although of secondary importance, should not be overlooked. The student of medicine, however highly or previously imperfectly educated he be, will be required to form acquaintance with, and store in his mind, a whole host of new words,—a new language, in short, which the necessities of the science have created. Aided by a previous competent knowledge of Latin and Greek, from which the terms in question are in great part derived, they will be with infinite readiness acquired, and with a like facility retained. Very different, however, will it be with him who has devoted little or no attention to these languages. His labour in the acquirement and retention of such terms will be amazingly increased, and from ignorance of their true and full meaning, the hold his memory has of them will never be trustworthy. So much in favour of an extended preliminary education, and the advantages which the more liberal study of medicine secures. This acknowledgment by no means prevents, or, strictly speaking, opposes me in urging, as I now do, the value of the advice which the Hippocratic Law contains, and which Plato adopts. Early instruction in medicine is, I believe, of the highest importance. Little need, however, is there for Latin and Greek being cast aside when the young student enters for the first time on his professional studies. I can see no possible incongruity between devotion to anatomy and the retention of all the fervour for classical pursuits which you may have hitherto entertained. Equally with your favourite authors may Hippocrates and Celsus now, however, claim your attention. The Latin of the latter is as good as his surgery, and that is saying all that can be said for both. A great modern surgeon has indeed earnestly advised students to keep the works of Celsus in their hands both by day and by night; and with justice has the renowned author of the treatise, "*De Medicina libri octo*," been familiarly described and long known as "*Hippocrates Latinorum et Medicorum Cicero*." Yes; I believe the advice to be sound—the advantage to be real—early instruction in the art to be desirable. Come to its study, Gentlemen, with young hearts and earnest minds. Medicine deserves, and will most bountifully reward, the devotion of both. No better mental training can be found anywhere than in the study of anatomy and chemistry; and these are the subjects to which you have first of all seriously to settle. But however diligently you may be devoting your time to both, you need not be prevented spending a limited portion of your day in the hospital,—in the observation of patients at the first, perhaps, more than in the observation of diseases. I am convinced that there is no occasion for the student delaying till near, oftentimes very near, the termination of his whole curriculum the clinical portion of his studies. For the latter to prove really valuable, it is no doubt necessary that some advance in the acquirement of anatomical and physiological knowledge has been made, and the more accomplished anatomists and physiologists you are, so much the better surgeons and physicians will you become. But while yet the rudiments of these sciences are being apprehended, the student can be learning—yes, and learning without any mental strain—much of what is to be of highest value to him in his future career. A distinguished living teacher of medicine has expressed himself strongly and eloquently upon this head. "From the day," says M. Trousseau, "that a young man intends to become a doctor, he

should frequent the hospital; he should see, be always seeing, patients. The confused materials which he thus amasses without order or method, are nevertheless excellent materials: useless to-day, they are long hence to be recovered in the treasures of memory. Now, when I am old, I can remember the patients whom I saw forty years ago, as I made the first steps in my career. I call to remembrance the chief symptoms, the lesions of structure, the numbers of the beds, and sometimes even the names of the patients, which, at a period so distant, made a powerful impression on my mind. These recollections are still serviceable to me,—they still instruct me. In our intercourse at the bedside you will sometimes hear me recall them.”¹ Such, too, may be your experience, Gentlemen; and in this way will the charm which the study of medicine creates, a charm so incomprehensible to the uninitiated, be earliest invoked. I have no fear of your returning with lessened pleasure to the dissecting table, or with diminished aptitude for its investigation to the chemical problem in the laboratory. On the contrary, your daily brief visit to medical or surgical wards, while teaching you something of the physiognomy of disease, will satisfy you how necessary a knowledge of anatomy and chemistry is to the surgeon and physician, and therefore with renewed interest will you take up the scalpel and handle the blowpipe. Yes, Gentlemen; and in another sense—I will not call it a higher, but a very high sense—these early visits to the hospital will be useful to you. You cannot be too forward in seeking that moral training which is requisite for us all. This, again, may not be better obtained than in the immediate sight of the suffering objects of our care. Go, then, at once to the bedside, and witness disease. Go while your hearts are yet tender with home thoughts and memories. The instruction, silent though it be, which you there receive will take a deep root, and fasten a sure hold.

“Nunc adhibe pure pectore verba.”

Again, the Hippocratic writer insists on the student possessing a love of labour, patient industry, diligence, *φιλοπονία*, *Industria*. This qualification is assuredly necessary for success. The natural ability without it will not suffice. Not unfrequently we find those who, possessing excellent, it may be even very distinguished talents, want the love of labour, the patient industry of which I now speak; and the end of such students is almost certainly disastrous. To insure success and happiness, be instant in your application, and be constant. So apportion your time that the period devoted to study is observed with the same regularity as the hour which calls you to classes or to meals. Fix it in your own minds that nothing is to be allowed to interfere with the devotion of a certain time to reading and to reflection. By acting in this way, and thus securing a decided advance in knowledge day by day, you will obviate the necessity for that forced and almost incessant application, determined by the near prospect of an examination, which is found to be so injurious both to mind and body. While leading the life of a student, do not think it incumbent upon you to neglect the care of the body. Take, if possible, a daily quantum of exercise; and, at all events, secure to yourselves the Saturday half-holiday, which has become, and properly become, the possession of nearly all working men. I know no working men who better deserve, or more urgently require, the recreation thus afforded than medical students. Without entering on the vexed question,—ably discussed, but left wholly unsettled, in the recent Social Science Congress,—as to whether bad smells are inimical to human health or not, I am thoroughly satisfied that the student who spends several hours daily during the week in the atmosphere of the dissecting-room, can only maintain his bodily

¹ Clinique Médicale de l'Hotel-Dieu de Paris. *Introduction*.

vigour intact by availing himself of the short country excursion which the Saturdays afford. On that day, also, and for the same reason, I am disposed to make the hospital visit briefer, so that the student who has been diligent in his attendance during the whole week, may not, like the poet, be found sighing merely for the country—

“ Oh ! when again
Shall I behold the rural plain ? ”

but regularly taking advantage of the unequalled facilities for reaching it which this city offers.

And now there only remains for us to notice the last of those advantages of which the learned author has made mention, to-wit, time or leisure for the study—*Χρόνος*, Tempus. Compare this with the expression found in the universally admired exordium of the book of Aphorisms, “ Life is short, and the art long.” Here the brevity of human existence is contrasted with the extent of the medical art. And yet, although life be short, there must, for the acquirement of a thorough knowledge of medicine, of necessity be the time to devote to its study. It is not in modern days alone that persons have been found possessing the temerity and impertinence to profess and practise the art of healing without having enjoyed the benefit of an extended medical education. Hippocrates bitterly complains of such. “ Medicine,” he remarks, “ is of all arts the most noble, but owing to the ignorance of those who practise it, and of those who with little discernment form a judgment of them, it is at present far behind the other arts.” And, again, Galen in his time loudly and indignantly reproaches a certain Thessalus, styling him “ ille impudentissimus Thessalus,” who had proposed to limit the study of medicine to a curriculum of six months. You may rely upon it, Gentlemen, that the period ordinarily prescribed by the statutes of universities and colleges for the study of the profession, is not unnecessarily lengthened, but, on the contrary, demands a rigid economy at your hands, in order that a satisfactory acquaintance may, while it lasts, be made with the numerous branches of knowledge which medicine embraces. In the earliest Christian university, that of Salerno, in Italy, which, as a school of medicine reached its highest eminence in the twelfth and thirteenth centuries, the requirements in this respect were more extended than those which now exist, for no candidate could be admitted to public examination who was unable to afford full proof of his having diligently studied during a period of seven years. I do not, however, wish you to imagine that, in my opinion, the period of study presently required is, on the other hand, too brief. It is sufficient, if turned to proper account, to enable the student to acquire a satisfactory knowledge of the early or preliminary branches ; and of the more strictly professional branches, we are not to be students for four or seven years, but for life. Thus, and thus only, shall we be entitled to be esteemed “ physicians not in name merely, but in reality and in effect.”

These, then, are the advantages which it is incumbent upon you as students of medicine to possess—a natural disposition, instruction, a favourable position for the study, early tuition, love of labour, and time to devote to the study. None of these are of really difficult attainment ; and thus furnished, no one need feel distrustful of success.

Your labours in this or other seats of medical instruction being over, you will be admitted to a place in a profession which has in all ages been regarded as most useful and most honourable. I know nothing more satisfactory, nothing more cheering and encouraging, in the practice of a calling such as ours, than the reflection that throughout its whole history there have never been wanting physicians who were among the very foremost men of the day in which they lived. There probably never existed a more exalted character

than the Father of Medicine himself. The judgment passed upon him by a very competent authority does not transcend his deserts:—"Hippocrates qui tam fallere quam falli nescit." If he did fall into error, he was ready to confess it; and in this, as in other respects, has left on record an example for our instruction. The little opportunity afforded him for dissection caused him to mistake the cranial sutures for fractures. It was the confession of his error by Hippocrates which led Celsus, in a most eloquent passage, to express the admiration he entertained for his character:—"A suturis se deceptum esse, Hippocrates memoria prodidit: more scilicet magnum virorum et fiduciam magnarum rerum habentium. For," continues Celsus, "little minds possessed of nothing suffer nothing to be lost: an ingenuous confession of error is expected of a great genius, who has enough, and more than sufficient, to ensure for him esteem; and very specially is such confession commendable in the practice of a useful art like medicine, which is handed down to posterity for their benefit, that they may not be deceived in the same way as another before them has been. Regard for the memory of a great professor," concludes Celsus, "has led me into this digression."¹ We scarcely know whether most to admire the spirit which prompted the illustrious Roman author thus to laud the magnanimous action of the Father of Medicine, or the excellence of the advice which he makes the relation of the circumstance to convey. On one point Gentlemen, you may rest assured, that the more you study the character of Hippocrates, as unfolded in his writings, the more will you feel disposed to agree with the testimony of the learned Macrobius,—in a tract much studied in the middle ages, and which I have already quoted,—that he knew not how to deceive or to be deceived. Equally satisfactory is it to us to find it recorded of Diocles, whom Celsus notices along with such eminent men as Praxagoras and Chrysippus, Herophilus and Erasistratus, that he honourably practised the healing art; or, as Galen has elsewhere put it, "haud lueri cupiditate emolumentorumque desiderio." Yes, Gentlemen, by the founders of our noble profession its true aims and legitimate objects were clearly recognised, and have been distinctly set forth. Should not their opinions and conduct exercise a salutary influence on us their descendants? We have indeed every incentive of this kind to the earnest and honourable discharge of our responsible duties. If you consult the roll of that body of distinguished men in the profession, of which we have so much reason to be proud,—I mean the Royal College of Physicians of London,²—from the period of its foundation by Henry the Eighth, in 1518, at the instance of the illustrious Thomas Linacre, down to this day, when Dr Thomas Watson fills so worthily its chair,—you will, I am sure, be forcibly struck by observing how very frequently scholarly attainments, extended professional knowledge, and true nobility of character, have blended in the persons of England's foremost physicians. Let us cherish the hope that a profession thus adorned will receive no tarnish in our day, but with its roots visited and strengthened, and itself thereby exalted in reputation and dignity, we may be able to transmit it to our successors.³

¹ Celsus, lib. viii. caput iv., De calvaria fracta.

² Roll of the Royal College of Physicians of London, by Dr Munk. 2 vols.

³ "I hold every man," says Lord Bacon, "a debtor to his profession, from the which, as men of course do seek to receive countenance and profit, so ought they of duty to endeavour themselves by way of amends to be a help and ornament thereunto. This is performed in some degree by the honest and liberal practice of a profession when men shall carry a respect not to descend into any course that is corrupt and unworthy thereof, and preserve themselves from the abuses wherewith the same profession is netted to be infected; but much more is this performed if a man be able to visit and strengthen the roots and foundation of the science itself, thereby not only gracing it in reputation and dignity, but also amplifying it in profession and substance."

CORRESPONDENCE.

(To the Editor of the *Edinburgh Medical Journal*.)

SIR,—In the September number of your Journal, which I have only recently seen, there is a review of my "Outlines of Surgery," containing many mis-statements and perversions of my text upon which the reviewer's strictures are founded.

1. In condemning the condensed style in which the book is written, your contributor asserts that I have compressed the principles of surgery into 105 pages. This is untrue; for the volume contains 256 pages: and there is no such division as that implied in his remark.

2. I am accused of "slipshod pathology," in treating of cancer. On reading the quotation on which this charge is founded, I find my text altered by the substitution of "all growth" for "cell-growth;" and the passage, thus rendered unintelligible, is commented on by the inquiry, "what material" it is which I refer to. The answer is contained in the word which the reviewer has suppressed. Another passage then follows, in which advantage is taken of an ambiguous expression to suggest my ignorance of such an elementary fact in pathology as the "occurrence of cancer in internal organs, or the almost invariable extension of it to the neighbouring lymphatic glands in advanced scirrhus." Nay, the reviewer goes on further to remark, that "no considerations of brevity can excuse an entire omission of such an important practical point as the spread of cancer by the lymphatics, to which Mr Clark does not even allude;" whereas, on the self-same open page on which he is commenting, the following passages form part of my text:—"Scirrhus, being slower in growth, and not ulcerating so readily, extends rather by contamination of neighbouring lymphatic glands," and again, "removal of cancerous growth rarely effects more than affording relief for a time, and deferring a fatal issue. It may, on the contrary, hasten it, by transferring the morbid action to some more vital part. Where scirrhus is indolent, it is probably wiser to leave it alone. Such indolence or arrested growth, in an external tumour, is sometimes coincident with its internal development." Yet these are subjects which the reviewer invites your readers to believe either that I am ignorant of or concerning which I am inexcusably silent.

3. I am next accused of recommending that the bladder be punctured from the rectum, "on account of the tediousness and trouble of opening the urethra in the middle line of the perinæum." This is a deliberate perversion of my text. I do not recommend one operation because the other is difficult. I simply give a preference to the alternative of relieving the bladder by puncturing it through the rectum, "when all expedients (to relieve the distended organ without operation) fail, and the urethra is free from injury or disease except the stricture." I then add, "if it be thought expedient to open the urethra by the perinæum—which becomes a necessity if there be extravasated urine or abscess—the patient should be placed," etc. My comment on this operation of dividing an impervious stricture in the perinæum, and passing on a catheter into the bladder is, that "it is often a tedious and troublesome operation;" and I think that any one who has practical experience on the subject will endorse my observation. Touching the treatment of stricture, I do not dispute the reviewer's privilege to advocate the "cure by incision;" but he misleads your readers in assuming that this practice is so generally approved—at least in London—as he supposes; and in affirming that, "in this year 1863," the employment of potassa fusa in indurated and irritable stricture, which "the regular and patient use" of instruments will not overcome, is to be regarded as a practice "altogether obsolete and based on lax surgical principles."

4. The criticisms respecting the classification of carbuncle and erysipelas, the form of incision in resection of the elbow-joint, and the question whether the severed olecranon should be removed or left attached to the triceps, are as

unworthy of notice as the inconsistent charge that I have "indulged in an elegant diffuseness," where I have attempted, in my closing section, to compensate, in some measure, for my previous brevity. But I cannot thus pass by the accusation that I have "garbled and vilified the operation invented by Professor Syme" of amputation at the ankle-joint, which is declared to be an "utterly intolerable" offence. This is strong language for one member of a liberal profession, albeit an anonymous writer, to apply to another; and requires something more than a plausible pretext to justify it. But does even this plausible pretext exist? In a few lines I am again twice misquoted; the substitution of the plural "flaps" for "flap," and the conversion of "carried" into "carved," have mystified the sense of the passage, and made my description ridiculous. I have collated my account of this operation with that of Professor Syme, in his last published volume of "Observations on Clinical Surgery," and have submitted these descriptions to surgical friends, who agree, as I think every impartial reader must, that, in every essential, the two descriptions correspond, with the single exception that I have adopted a suggestion of Professor Quain, to make a short incision "from the outer point of union of the two flaps towards the tuberosity of the os calcis." The utility of this trifling addition I have tested, as facilitating the dissection, and fulfilling a desideratum to which Professor Syme attaches much importance,—that of ready drainage for the discharge. I believe that partial sloughing of the cellular tissue and border of the flap will happen sometimes in spite of the utmost care; it has occurred twice in my own practice, without at all marring the successful issue of the cases; and it has occurred to other operators, and even to the inventor of the operation himself.

A few words more regarding the ambiguous expression to which I have referred, it is this,—"Encephaloid . . . is the only form of cancer) prone to secondary development by actual contact or conveyance in the circulation." I frankly admit that, taken by itself, this passage does not express my meaning; but I have already shown that, with the context, it cannot be fairly interpreted in this literal sense. If I had been less concise, I could have been more explicit; the passage should stand thus,—"*Encephaloid* is the only form of primary cancer which is prone, or shows a constant tendency, to develop itself in the same form where there is secondary deposit." For pointing out this obscurity of diction I thank the reviewer.

These, and these only, are the grounds upon which my professional character is impugned by an irresponsible writer, who, whatever his qualifications, rests his claim to public confidence on your sanction, and the unquestioned reputation of the *Journal* to which he is a contributor. I trust, therefore, you will not think me unreasonable in expecting that you will do me the justice to insert this appeal from a verdict which rests on such fallacious evidence.—I am, Sir, yours obediently,

F. LE GROS CLARK.

P.S.—I enclose Professor Syme's description, with mine, of amputation at the ankle-joint, and shall be well pleased if you can find space to print them side by side, that the correctness of my assertion may be more readily verified by your readers.

"Amputation at the Ankle-Joint."

"This very satisfactory operation is thus performed:—The anterior incision should extend in an oval direction from the point of one malleolus to that of the other, securing just sufficient front flap to extend well beyond the base of the tibia; more is undesirable, as the cicatrix must be anterior to the seat of pressure. The lower incision, *i.e.*, the anterior margin of the posterior flap, should be directly beneath the malleoli, and extend transversely across from one to the other: and this incision should be carried freely and at once down to the bone. The subsequent dissection is facilitated by another incision, carried downwards and backwards, from the *outer* point of union of the two flaps, that is, towards the tuberosity of the os calcis. The skin and fat should

be peeled carefully from the heel-bone, until the great tendon is reached, and this requires both time and caution to accomplish. Then the ankle-joint may be dislocated from the front, and the tendo Achillis is the last part to be divided. The malleoli must be sawn off, and also, if diseased, the articular surface of the tibia. Care should be taken to divide the plantar arteries, if possible, after the bifurcation of the posterior tibial."—*Clark's Outlines of Surgery*, p. 177.

"The foot being placed at a right angle to the leg, a line drawn from the centre of one malleolus to that of the other, directly across the sole of the foot, will show the proper extent of the posterior flap. The knife should be entered close up to the fibular malleolus, and carried to a point on the same level of the opposite side, which will be a little below the tibial malleolus. The anterior incision should join the two points just mentioned at an angle of 45° to the sole of the foot and long axis of the leg. In dissecting the posterior flap, the operator should place the fingers of his left hand upon the heel, while the thumb rests upon the edge of the integuments, and then cut between the nail of the thumb and tuberosity of the os calcis, so as to avoid lacerating the soft parts, which he, at the same time, gently, but steadily, presses back until he exposes and divides the tendo Achillis. The foot should be disarticulated before the malleolar projections are removed, which it is always proper to do, and which may be most easily effected by passing a knife round the exposed extremities of the bones, and then sawing off a thin slice of the tibia connecting the two processes."—*Syme's Contributions to the Pathology and Practice of Surgery*, p. 146.

(To the Editor of the *Edinburgh Medical Journal*.)

SIR,—In answering the letter from Mr Le Gros Clark, I shall very briefly examine his statements in detail.

1. The Principles of Surgery are compressed into 105 pages, the remaining sections containing Injuries and Diseases of Regions and Operative Surgery, which are usually entitled Practice of Surgery, while the last section of 60 pages, "compensating for the brevity of the rest of the work," does exhibit the "elegant diffuseness" referred to in Mr Clark's fourth objection.

2. The very stupid and obvious error of "all growth" for "cell growth," as also "carved" for "carried" in the fourth paragraph, are typographical errors, the result of the reviewer's bad penmanship, for which he frankly apologizes. The statement about encephaloid, of which Mr Clark admits the ambiguity, if not the incorrectness, will, when altered, enable the student better to appreciate the value of the statement which at present it contradicts, about scirrhus contaminating the glands.

3. With reference to Mr Clark's objections to the criticisms on points of practice, no "reviewer can," were he ever so willing, "mislead his readers" (see objection 3), and operations may be obsolete, and even founded on lax surgical principles, though still practised ever so extensively.

4. If criticisms are unworthy of notice, why does Mr Clark notice them? That strong language is used is true, that it was needed is no less true, if reviewing is to be other than an empty name.

Mr Syme's operation is garbled, inasmuch as, by Mr Clark's own showing, the direction of Mr Syme's incision is altered from a transverse to an "oval," and a new incision is added, which has the effect of cutting off so much of the vascular supply of the flap as frequently to cause it to slough.

It is vilified, because the resultant sloughing is said to be not uncommon as a result of the Clark-Quain operation, which, in a large experience of Mr Syme's operation, the reviewer has never seen to occur.—I have the honour to be,

THE REVIEWER.

GENERAL COUNCIL OF MEDICAL EDUCATION AND REGISTRATION FOR THE UNITED KINGDOM.

By the Medical Act, which received the royal assent on the 2d August 1858, a General Council of twenty-four members was intrusted with the superintendence of the Act, and with the regulation of the profession generally. Of these twenty-four members, seventeen were to be elected by certain Universities and Colleges, and six to be nominated by Her Majesty, with the advice of her Privy Council. These twenty-three, with a president elected by the Council themselves, constituted the body. The appointments were for five years, and as they were first made in November 1858, the term for which the original members were elected lately expired. Death has been busy among the earlier members; Sir Benjamin C. Brodie, the first president; Mr Williams and Mr Porter, the representatives of the College of Surgeons of Ireland; Mr Nussey, who sat for the English Apothecaries; the first representative of Glasgow University; and Dr Baly, the Queen's physician, have all been removed; while Sir James Clarke, Dr Watson of London, Dr Watson and Mr Watt of Glasgow, have been compelled to resign on account of age or infirmities. The result of the elections, most of which took place last month, has been to re-elect most of the representative members; but a great change has been made among those appointed by Her Majesty; and Dr Parkes, Dr Quain, and Mr Rumsey, take the place of the veteran Mr Lawrence, Sir Charles Hastings, and Mr Teale of Leeds. Dr Christison of Edinburgh, and Dr Stokes of Dublin, are reappointed by Her Majesty. The health of the venerable and much-esteemed successor of Sir Benjamin Brodie in the presidentship, Mr Joseph Henry Green, has of late caused his friends the greatest anxiety, but we are glad to learn that the latest accounts are much more favourable. The Scottish members are all re-elected—Dr Alexander Wood representing the College of Physicians, Dr Andrew Wood the College of Surgeons, Dr Fleming the Glasgow Faculty, Mr Syme the Universities of Edinburgh and Aberdeen, Dr Allen Thomson the Universities of Glasgow and St Andrews, and Dr Christison being reappointed by the Queen. Of the new members, Dr Parkes is an M.D. of London University, and Professor of Hygiene in the Army Medical School, Chatham, and was for some years editor of the *Medico-Chirurgical Review*. Dr Quain is a member of the Senate of the University of London and an M.D. of that University; he is also a Fellow of the Royal College of Physicians. Mr Rumsey, a surgeon in good position in Cheltenham, is well known by his labours in behalf of social science, especially in the sanitary department, and by his admirable "Essays on State Medicine," published in 1856. One obvious result of these changes will be to diminish the influence of the College of Surgeons in the Council, and to increase that of the London University.

UNIVERSITY OF EDINBURGH.—MEETING OF GENERAL COUNCIL.

At a meeting of the General Council of the University of Edinburgh, held on Friday the 30th of October, John Muir, Esq., D.C.L. Oxon., and LL.D. Edin., was unanimously elected to be its representative in the University Court. Dr Muir, who for many years held high appointments in India, lately bestowed the sum of £4000 to found a chair of Sanskrit in the University.

UNIVERSITY OF EDINBURGH.—OPENING OF THE SESSION.

THE winter Session of the University of Edinburgh was publicly opened on Monday the 2d November, by the delivery of an introductory address by Principal Sir David Brewster. The learned Principal, in the course of his address, referred particularly to the bursaries and endowments for which the University is indebted to various benefactors.

MEDICAL SCHOOL, SURGEONS' HALL.

THE Medical School, Surgeons' Hall, was publicly opened on Monday the 2d of November, when an address was delivered by Dr Warburton Begbie. This address will be found at page 564 of the present number of this Journal.

UNIVERSITY OF EDINBURGH—NUMBER OF STUDENTS.

THE number of students matriculated at this date (23d November), is 1376. They are distributed as follows among the different Faculties :—Arts, 598; Medicine, 446; Law, 272; Divinity, 60. Last year, at the corresponding date, the total number of matriculated students was 1400, distributed as follows :—Arts, 600; Medicine, 470; Law, 259; Divinity, 71. It will thus be seen that there is a falling off in the number of medical students to the amount of 24, exactly the number by which the medical students of 1862 fell short of those of 1861. We understand, however, that the deficiency this year is entirely owing to the small number of third years' men. There was an unusually small entry of first years' students in 1861, but during the last two years the number has been steadily increasing.

HOMŒOPATHY AND VETERINARY MEDICINE.

ONE of the favourite arguments of the homœopathist has been the alleged good effects of his system, in the treatment of the diseases of the lower animals. Imagination could have no effect upon them, and if infinitesimal doses produced therapeutic results, this must be owing to their intrinsic potency, and not to any mental impression. The following quotation, from the *North British Agriculturist*, will show how far the boasts of the homœopathist have been borne out by facts. We must premise that the experiments alluded to below were made and detailed by Mr Frere, editor of the Journal of the Royal Agricultural Society :—

"After presenting his readers with several very weakly reasons for trying homœopathy, our editor sets forth his experimental cases, which are well worthy of a brief examination. The first case of illness is that of a two-year-old bullock, on 12th December 1862. For four days 'aconite, and then aconite and bryonia alternately were given every hour; 4th day no better, ammonium causticum, twelve drops every hour and a half; 5th day, phosphorus every hour; 7th day, bryonia and phosphorus every two hours.' But despite the frequent changes and varieties of the medicine, the often-repeated doses, and the care and nursing doubtless also bestowed upon the bullock, it is only on the 11th day that Mr Frere and his bailiff, with all their anxiety for the success of their practice, are able to report the beast any 'better.' It is a striking case of much cry and little wool. It reminds one of the mountain and the mouse. We have great labour and unwearied assiduity in the doctoring of the case, but with singularly little practical result. We never saw an instance in which nature's own cure was more evident, and the animal seemed to recover quite independently of the medical treatment. Surely Mr Frere must be aware that the disorders both of men and animals exhibit great tendency to spontaneous recovery. How constantly do they pass away without any remedial measures whatever, and even in spite of notoriously faulty treatment! Nor is pleuro-pneumonia any exception to this rule. In most unmistakable form we have known it attack cattle in a grass field, run its course without any interference, and leave the animals in a few weeks in a sounder and healthier state than Mr Frere's two-year-old bullock. But to proceed with the case—he was estimated to have lost little more than the cost of one month's keep, had very sensibly taken during his illness to gruel and fattening drinks, which doubtless contributed to his recovery more than the farago of homœopathic trash, and

was sold 31st March, for £16, 16s.—weight, 42 stones, 9 lbs. Then we are treated to a somewhat curious *post-mortem* report of the lungs, which Mr Frere examined with an eminent anatomist in Cambridge. 'We found,' says he, 'that about one-sixth of the right lung (anterior part) was congested; a gathering had also been formed, emphysema existed, and by adhesion of the lung to the rib, several pounds of meat were blackened and spoilt.' The presence of 'congestion' is rather peculiar, and would almost lead one to suppose that Mr Frere and his eminent anatomical friend had mistaken for actual disease the appearance known as *post-mortem* congestion. Be this as it may, the 'gathering,' 'emphysema,' 'adhesion,' and 'blackening,' which are so loosely spoken of, afford, like the steady persistence of the acute symptoms for ten days, most unmistakable evidence of the total inefficiency of the treatment.

"The second case is but a repetition of the first, and, sensibly considered, affords ample proof, not of the success of the homœopathic treatment so sedulously employed, but of its palpable inutility. 'The young bullock was taken ill 5th January 1863; had aconite every half hour; 6th, bryonia every hour; 7th, much worse, no appetite, phosphorus every hour; 9th, no better, breathing bad, pain in chest, nux and antimony; 12th, much trembling, skin hot and dry, ammonium causticum every half-hour; 15th, expected to die every hour, it lay down three days and nights, and was fed with gruel; arsenicum and mercurius vivus four grains, in turns, for two or three days, aconite at night; 18th and 19th, a little better, phosphorus every hour; 21st, better, ate a little; 25th, much better; 29th, ate a little mangold.' It is worthy of observation that thirteen days elapse during which nature struggles with the disorder, the case runs its course precisely as where nothing whatever is done, and the variety and frequency of the doses cause no remission of the symptoms. It is only by the 18th that signs of amendment appear, and even then the progress of convalescence appears slow, for on the 29th it is recorded as a rather extraordinary fact that the patient 'ate a little mangold.'

"The third case is given of a slight attack and a prompt cure, and even here infinitesimal doses of aconite and bryonia are continued for five days before any favourable results are noticed. This is unsatisfactory indeed, and very damaging withal to the interests of homœopathy. Even in serious and acute disorders, as in cases of pleuro-pneumonia, for example, our allopathic treatment fortunately compares very favourably with Mr Frere's homœopathic treatment. Our remedies, rationally used, have a notable effect in abating the fever, pulse, and even difficult breathing, not in ten or thirteen days, or even in five days, as in Mr Frere's mild case, but in twelve or fourteen hours or even in less time. The complaint, instead of running on in all its severity for nearly a fortnight, can by well tried measures be greatly alleviated, its course shortened, and many of its serious results prevented.

"Mr Frere oracularly promulgates the rather sweeping assertion 'that all medical treatment rests and must rest on an empirical and shifting basis rather than on the mature conclusions of reason.' Fortunately this is by no means true with regard to the rational practice of medicine; but our readers can scarcely help being struck with its remarkable application to his own practices, which are not only perfectly 'empirical,' but quite perplexing in the frequent 'shifting' and endless changes of the drugs prescribed. Certainly, if homœopathy rests upon any basis whatever, it is on one which, as Mr Frere himself expresses it, is 'very far removed from the conclusions of reason.' The homœopathic plan of treating diseases by those means which would make sound persons ill is as opposed to experience as it is to common sense. On the principle of '*similia similibus curantur*,' most disorders would be hopelessly incurable, for there are many diseases, such as ague, glanders, broken wind, consumption, and strangles, which cannot be produced by any known medicines. The infinitesimal doses, which also form so prominent a feature of homœopathy, are another of its faulty and absurd features. Of most medicines the tenth of a grain is powerless, and what are we to say of the efficacy of the thousandth, millionth, or decillionth of a grain—quantities which are so minute as scarcely to be conceivable."

ON THE ACCIDENTS WHICH RESULT FROM SWALLOWING
LEECHES IN ALGERIA.

THE effects caused by leeches when swallowed have been observed by Larrey and a good many other military surgeons. Dr Baizeau has had frequent opportunities of noticing them in Algeria. Most of his observations apply to soldiers. At the time when the leeches are swallowed they are so small as readily to escape observation. Filiform, they are almost imperceptible, or if observed, they would probably be taken for a morsel of grass. At a later period they enlarge, and often attain the dimensions of the adult animal. They generally attach themselves to the isthmus faucium, or to the pharynx, more rarely to the velum palati; they are also met with in the nose. Some fasten themselves to the border of the larynx, or even penetrate into its cavity. They are scarcely ever met with below the lower part of the pharynx. Once settled they generally remain, and acquire a rapid development. M. Baizeau has known cases where they have remained six or eight months in the pharynx. Persons in whose throats leeches have attached themselves, are warned of their presence by the fact of their expectorations being stained with blood. This sign is constant, and is sometimes the only one; but it is diagnostic. The blood expectorated is in small quantity; sometimes it is bright red, at others it is darker coloured. On examining the throat, the leech, or one of its extremities, becomes visible; but often it cannot be seen. By depressing the tongue it may be brought into view, or the finger introduced into the pharynx may impinge upon it. Most of the patients feel a certain uneasiness in the throat, and a constant desire to swallow. The tail of the animal sometimes tickles the base of the tongue and the margins of the glottis, and provokes cough, nausea, or vomiting. A leech fixed in the opening of the larynx may give rise to difficulty of breathing, or even asphyxia, either by becoming entangled in the vocal chords or by giving rise to swelling and œdema of the aryteno-epiglottidean folds. If the animal be settled in the nasal fossæ it gives rise to a continual but scanty epistaxis, and there is sometimes the sensation of an obstructing foreign body.

The diagnosis is almost always easy; still, if not aware of the possibility of hæmorrhage being caused by the presence of one of these animals, we might fall into error, and believe it to be occasioned by disease of the lungs or larynx, or an ulcer of the pharynx or œsophagus. Still the absence of the other signs proper to these affections will generally prevent us from falling into error. In most cases an examination of the throat is enough. But if we can neither see the leech, nor feel it with the finger, we shall generally find the walls of the pharynx coated with a thin layer of red blood. If it were in the œsophagus the diagnosis would be more difficult, as the blood would flow into the stomach, and the patient might have scarcely any sensation of a foreign body. Still it is extremely improbable that the animal could remain any length of time in that situation.

Leeches rarely come away of themselves. It is necessary to extract them, or to cause them to let go their hold. When they are within the reach of instruments, when they are attached to the velum palati, or are on a level with the isthmus faucium, they may be grasped by dressing or polypus forceps and removed. If they are situated more deeply they may be seized with curved forceps. If we cannot see the animal we must be guided by the finger; but this method is uncertain, as there is a risk of injuring the mucous membrane. When on depressing the tongue we see one of the extremities, we should endeavour to seize it on the first attempt, otherwise the animal contracts upon itself and disappears. We are then obliged to wait till it comes again into view. If extraction is impossible, we must have recourse to the means in ordinary use for making leeches applied externally drop off. We make the patient swallow small mouthfuls of water highly acidified with vinegar or containing common salt, or he may employ gargles containing these substances.

This treatment must be continued for several days, and it sometimes fails. It is preferable to blow powdered salt upon the point where the leech is presumed to be fixed, or to employ a sponge fixed to a piece of whalebone, and saturated in brine, or powdered over with salt. In one case, M. Baizeau employed all these means during six weeks, causing the patient, moreover, to swallow daily three or four glasses of sea-water, and to take considerable quantities of brandy. It was only after six weeks that the leech extended itself, could be seen from the mouth, and was seized. It seemed to have been none the worse for all that had been done, for it was enormous. Leeches lodged in the nasal fosse, or above the velum palati, should be attacked by injections, or the insufflation of salt. A leech situated in the larynx might perhaps yield to sulphureous fumigations or the inhalation of chloroform, if the symptoms allowed of our trying such means, but almost always there would be a threatening of asphyxia, and then tracheotomy or laryngotomy would be necessary.

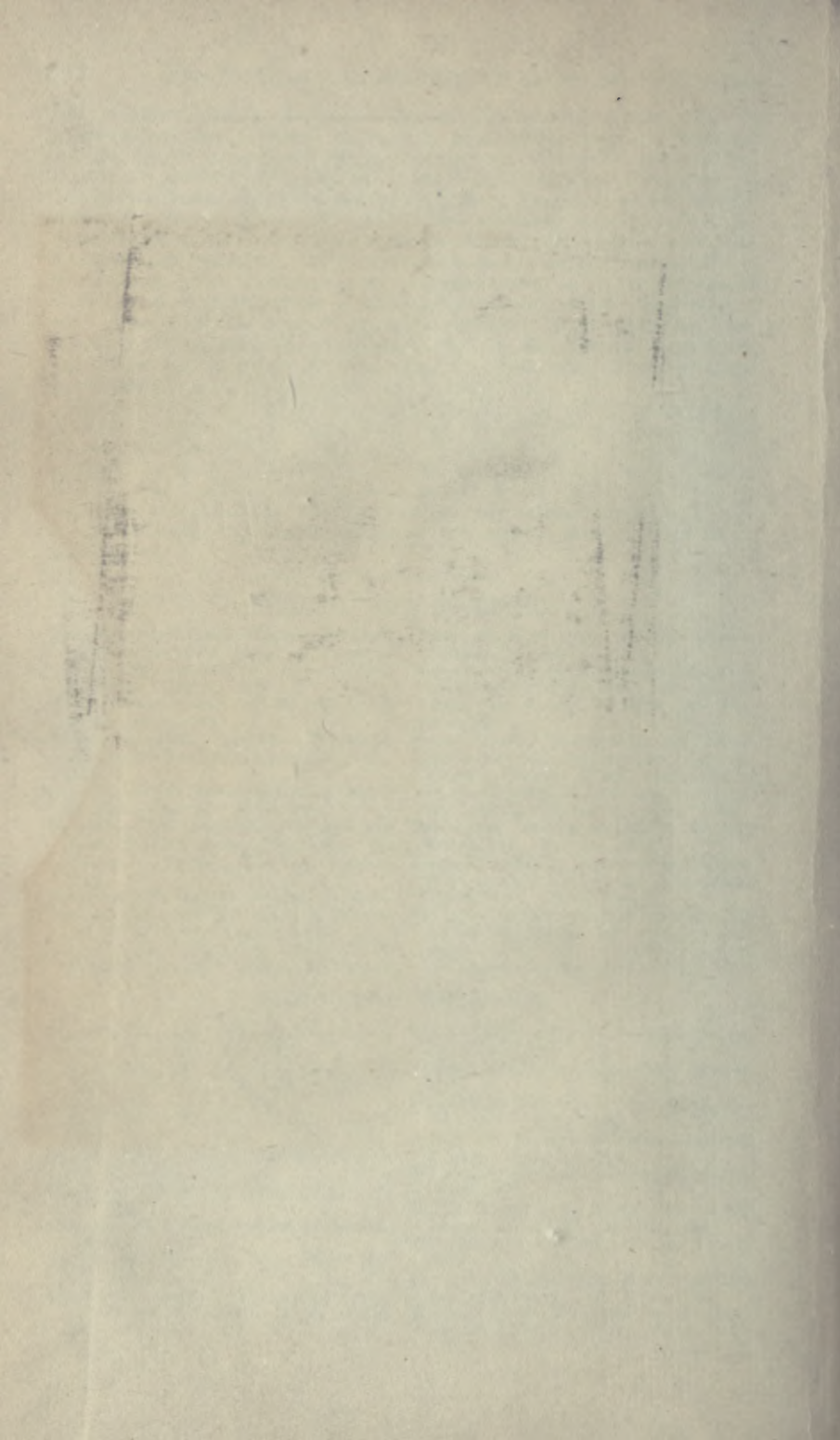
All these annoyances might be saved by warning the soldiers of the danger to which they are exposed by drinking from streams while on march. Larrey recommended that a little vinegar should be mixed with the water, and that it should all be placed in special vessels. But it is sufficient to pass the water through a piece of linen, or to prevent the soldier from drinking directly from the stream; for if he drink out of a vessel, and use ordinary attention, there is no risk of swallowing leeches, no matter how small.—*Archives Générales de Médecine*.

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